Appendix-1 Variations to existing flight and duty time limitations

Alleviation Title	**Variations to existing flight and duty time limitations**
Version	**1.0**
Publication Date	**23 April 2020**
Relevant Standard(s)	**Flight Operations Requirements- Aeroplane (FOR-A)** **Para** 4.10.2 states… An Operator shall, in compliance with 4.10.1 and for the purposes of managing its fatigue-related safety risks, establish either: a) flight time, flight duty period, duty period and rest period limitations that are within the prescriptive fatigue management regulations established by the requirements of this FOR Chapter 9; or b) a Fatigue Risk Management System (FRMS) in compliance with 4.10.6 for all operations; or c) an FRMS in compliance with 4.10.6 for part of its operations and the requirements of 4.10.2 a) for the remainder of its operations. *Note.— Complying with the prescriptive fatigue management regulations does not relieve the operator of the responsibility to manage its risks, including fatigue-related risks, using its safety management system (SMS) in accordance with the provisions of CAAN CAR 19.* 4.10.3 Where the operator adopts prescriptive fatigue management regulations for part or all of its operations, the DG, CAAN may approve, only in ***exceptional*** circumstances, variations to these regulations on the basis of a risk assessment provided by the operator. Approved variations shall provide a level of safety equivalent to, or better than that achieved through the prescriptive fatigue management regulations. Note- For variations in existing flight and duty time limitations in general aviation and helicopter operation CAAN will issue the permission in case to case basis based on the acceptable safety risk assessment
Problem Statement	Due to Covid-19 generated circumstances, (such as restrictions / quarantine requirements at flight destination or origin, or the need to enable urgent medical supply flights and flights for repatriation of people), temporary measures to increase flight and duty limits and/or reduce rest requirements (period and / or facilities) may be required. These extended operations need to consider all risks and implement the appropriate mitigations to be done safely. As some of these extended operations are beyond current operational experience with little or no evidence as to their safety implications, it is particularly important for

	States to apply fatigue-related scientific principles to develop extended operations requirements in a way that supports adequate crew performance and recovery.
Applicability	**Able to be used only where:** ➢ The situation is extreme and one-off or very short-term operations need to be supported. ➢ All other options have been evaluated and have been found to have an unacceptable level of safety for the operating crew and/or passengers carried. ➢ The Operator's SMS has been audited to demonstrate effective identification and management of fatigue hazards and /or the Operator has an approved FRMS. ➢ This QRG will not be applicable for those individuals who are under investigation following any accident or incident or events related to breach of regulations.
Alleviation summary	An alleviation to permit, under controlled and monitored conditions, flight operations beyond those normally permitted either under a CAAN's prescriptive limitations or an Operator's approved FRMS.
Operational context	The applicable regulator has accepted, in writing and in advance of the operation, the operator's route-specific safety case and the proposed mitigations. The Operator's safety case is based on the framework detailed in 4.2.3 of Doc 9966, and includes a comprehensive flight risk assessment covering all risks associated with these novel operations, including the combination of multiple alleviations. (See *OPS QRG Recency* and *OPS QRG Flight Crew Training Programmes*) The Operator's safety case has identified: — The circumstances in which the alleviation may be used; — The operations to which the variations may be applied; — The necessary mitigations to address the increased fatigue risks; and — The flight and duty period limits and rest requirements (including pre- and post-trip pattern). — how the need for adequate sleep, for limiting periods of wake, circadian effects and workload are to be addressed. — a contingency plan(s) that covers operational and fatigue related issues that may arise during the flight (i.e. technical problems, weather, delays, crew unfit to continue duty).
Possible Mitigations and Solutions	Additional pre-trip rest to ensure fitness for duty • Methods to prevent cumulative fatigue • Appropriately augmented crews as required by the safety case for each rotation • Adjusting rosters to avoid critical phases of flight during the window of circadian low (WOCL) • Methods to maximise in-flight rest time allocation for all crew in support of optimising crew alertness.

	• Provision of appropriate facilities for on-board sleep and protected cabin spaces (away from passengers, cargo) to support rest and minimise the health risk to the crew. ➢ Food and drink is readily available for the duration of the duty ➢ Restricted dispatch conditions (fuel, operational limitations, MEL items, limit the number of passengers/cargo) ➢ Protections around commuting to / from home base ➢ Operating within the weekly / monthly limits for duty, rest and flight time ➢ Crew are provided with the flexibility to allocate rest and operational duties on the day to manage actual sleep / alertness needs of the crew; ➢ Fatigue awareness and management briefings to crew prior to commencement of operations; ➢ Provision of airport hotel facilities to limit transit time and challenges generated by the Covid-19 situation.
Alleviations likely to be unacceptable to other States	Airline operators engaged in international flight operation should note that other States may deny permission under following situations: ➢ Alleviations without written approval from CAAN; ➢ Operators using this temporary alleviation for reasons not associated with Covid-19 restrictions. **NOTE- Air operators engaged in international flight will particular attention on above conditions.**
Reference	➢ Flight Operations Requirement- Aeroplane (FOR-A) ➢ CAAN Civil Aviation Requirements 19 (CAR19)

Additional guidance:
The following additional guidance may be useful for the CAAN inspectors and applicants in this unusual circumstances caused by COVID19.

Further Examples of Fatigue-related Safety Case Considerations
Where alleviations to flight and duty limits are sought, the Operator must provide a safety case. Such a safety case needs to clearly identify and address ALL risks, including those related to fatigue. Within a safety case, particular attention is needed when multiple alleviations are being used at the same time.

With increasing extensions to FTLs, fatigue-related considerations, the range of necessary mitigations and contingency options, will also increase. Everything is proportionate to the level of risk posed by extension being requested.

The lists below complement the flight and duty time alleviations QRG and are designed to support the regulator in evaluating an Operator's safety case to use such alleviations. They provide additional bullet points on possible fatigue-related considerations and contingencies that may need to be addressed within a safety case to support temporary extended operations during

the COVID-19 pandemic. They identify areas that have frequently been included in approved safety cases to support FTL variations or FRMS applications.

It would be insufficient for a safety case to only list such items, without providing more details and evidence of methods and procedures to be used.

CAAN inspector will review the guidance in Doc 9966 for further information on evaluating fatigue aspects in safety cases. This includes more detailed background on the scientific principles, fatigue risk assessment processes and assurance methodologies. They are also reminded to review the associated supporting implementation manual.
Considerations

- Levels of augmentation and qualification of crew members should be commensurate with the risk level of the operation. Emphasis should be placed on having the most rested crew members in control seats during the critical phases of flight.
- For multiple sector augmented flights, the sector length must allow for adequate inflight sleep.
- If the sectors are too short, there might not be adequate opportunity for sleep. If the flight duty period has a long sector followed by short sectors, it can drive greater time awake.
- People need sleep. Rest is not the same as sleep. Where crew are expected to obtain in-flight sleep, in-flight facilities must be in line with the fatigue-related science and adequate to facilitate sleep.
- Pre and post flight rest periods must be enable the crew to be fully rested prior to operation and allow for a full recovery from an unknown level of sleep loss after the operation. Examples include:

— For FDP's of up to 21 hours, all crew shall be acclimatized at the start of the FDP with a minimum rest time free from all duties, which includes 3 local nights, prior to operating flights and 3 local nights upon return to base under this Exemption
— For FDP's over 21 hours, all crew shall be acclimatized at the start of the FDP with a minimum rest time free from all duties, which includes 3 local nights, prior to operating flights and 4 local nights upon return to base,

- The departure times should reflect a window(s) for optimal crew alertness.
- Fatigue can accumulate across a roster pattern, not just in relation to a single trip. Does the operator identify a method, either within the SMS process or within an approved FRMS, to assess cumulative fatigue of the full roster pattern?
- Where bio mathematical models are used by the operator to predict fatigue levels associated with the proposed flight and duty extensions, does the operator clearly understand its limitations? Was operational experience also used to develop the safety case for these flights?
- Is there evidence of crew support and involvement in the development of the safety case, where possible?
- Is there evidence that the operator has considered other Human Factors considerations, (e.g. confinement to room on layover, stress, etc) within the safety case

- What processes has the operator put in place to ensure timely analysis and processing of FDM, ASR/MORs and crew fatigue reports generated from these flights in order to address any issues without delay;
- The period to which a Captain can use his/her discretion to extend an operation may need to be reduced in already extended operations.
- Has the impact of State restrictions on entry/exit and quarantine of crew members been addressed?
- How will crew members make it home safety at the end of the extended duty?

Contingency Planning

- Use of controlled rest: In accordance with Fatigue Management Implementation Guide for Airline Operators
- Diversions: Operators should identify safe airports for diversions for either operational or fatigue related issues during the operation.