



ATTACHMENT B

**FLIGHT TIME AND
FLIGHT DUTY PERIOD LIMITATIONS**

Supplementary to Section II, Chapter 2, 2.2.10.2 & Chapter 7

1. Purpose and scope

- 1.1 Flight time and flight duty period limitations are established for the sole purpose of reducing the probability that fatigue of flight crew members may adversely affect the safety of flight.
- 1.2 In order to guard against this, two types of fatigue must be taken into account, namely, transient fatigue and cumulative fatigue.
- a) Transient fatigue may be described as fatigue which is normally experienced by a healthy individual following a period of work, exertion or excitement, and it is normally dispelled by a single sufficient period of sleep.
 - b) On the other hand cumulative fatigue may occur after delayed or incomplete recovery from transient fatigue or as the after-effect of more than a normal amount of work, exertion or excitement without sufficient opportunity for recuperation.
- 1.3 Limitations based on the provisions of *Chapter 2, 2.2.10.2 & Chapter 7* will provide safeguards against both kinds of fatigue because they will recognize:
- 1.3.1 The necessity to limit flight time in such a way as to guard against both kinds of fatigue.
 - 1.3.2 The necessity to limit time spent on duty on the ground immediately prior to a flight or at intermediate points during a series of flights in such a way as to guard particularly against transient fatigue.
 - 1.3.3 The necessity to provide flight crew members with adequate opportunity to recover from fatigue.
 - 1.3.4 The necessity of taking into account other related tasks the flight crew member may be required to perform in order to guard particularly against cumulative fatigue.

2. General

- 2.1 The responsibility rests with the pilot, not to exercise the privileges of the licence and related ratings at any time when aware of any decrease in medical fitness which might render the pilot unable to safely exercise these privileges, including any decrease in medical fitness through fatigue.



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2.2 The limitations laid down in the following paragraphs are to be considered as minimum requirements and it is the responsibility of the operator to adjust them in certain cases, having regard to the factors mentioned below. Specific factors to be taken into consideration are:

- a) the crew composition of the aircraft;
- b) the probability of operational delays;
- c) the type of aircraft and route complexities such as traffic density, navigation aids, standard of equipment carried, communication difficulties, and high altitude flying in unpressurized aircraft, or flying with high cabin altitudes in pressurized aircraft;
- d) the proportion of night flying involved;
- e) the extent to which the accommodation at layovers is such as to permit crews to secure real rest;
- f) the number of landings and take-offs;
- g) the need for an orderly scheduling system, giving a high degree of stability (for this, provision of adequate reserves is an important factor);
- h) the sleep deprivation arising from interruption of the normal sleep/wake cycle; and
- i) the cockpit environment.

2.3 For reasons of flight safety, the operator has the responsibility to ensure that crew members engaged in duties other than flight duties performed on behalf of the employer are provided with at least the minimum required rest periods before engaging in flight duties.

3. Definitions

Deadheading crew. A crew member positioned by the operator in flight or by surface transport.

Duty period. The time during which a flight crew member carries out any duty at the behest of the flight crew member's employer.

Flight duty period. The total time from the moment a flight crew member commences duty, immediately subsequent to a rest period and prior to making a flight or a series of flights, to the moment the flight crew member is relieved of all duties having completed such flight or series of flights.

Flight sector. A flight or one of a series of flights which commences at a parking place of the aircraft and terminates at a parking place of the aircraft. It is composed of:

- flight preparation,
- flight time,
- post-flight period after the flight sector or series of flight sectors.

Flight time — helicopters. The total time from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped.

Rest period. Any period of time on the ground during which a flight crew member is relieved of all duties by the operator.



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Series of flights. Two or more flight sectors accomplished in between two rest periods.

Standby. A defined period during which a crew member may be called for duty with minimum notice.

Turnaround time. The time spent on the ground during a flight duty period between two flight sectors.

4. Comments about the definitions

4.1 Flight time

The definition of flight time is of necessity very general but in the context of limitations it is, of course, intended to apply to flight crew members in accordance with the relevant definition of a flight crew member. Pursuant to that latter definition, licensed crew personnel travelling as passengers cannot be considered flight crew members, although this should be taken into account in arranging rest periods.

4.2 Flight duty periods

4.2.1 The definition of flight duty period is intended to cover a continuous period of duty which always includes a flight or a series of flights. It is meant to include all duties a flight crew member may be required to carry out from the moment the flight crew member reports at the place of employment on the day of a flight until relieved of duties, having completed the flight or series of flights.

It is considered necessary that this period should be subject to limitations because a flight crew member's activities within the limits of such period would eventually induce fatigue — transient or cumulative — which could endanger the safety of a flight.

There is on the other hand (from the point of view of flight safety) insufficient reason to establish limitations for any other time during which a flight crew member is performing a task assigned by the operator. Such task should, therefore, only be taken into account when making provisions for rest periods as one among many factors which could lead to fatigue.

4.2.2 The definition does not imply the inclusion of such periods as time taken for a flight crew member to travel from the flight crew member's home to the place of employment.

4.2.3 An important safeguard may be established if operators recognize the right of a crew member to refuse further flight duty when suffering from fatigue of such a nature as to affect adversely the safety of flight.

4.3 Rest periods

The definition of rest period implies an absence of duty and is intended to be for the purpose of recovering from fatigue; the way in which this recovery is achieved is the responsibility of the individual.



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5. Types of limitations

5.1 Limitations are broadly divided by time; for example, the majority of States reporting to ICAO prescribe daily, monthly and yearly flight time limitations, and a considerable number also prescribe quarterly flight time limitations. It will probably be sufficient to prescribe flight duty period limitations on a daily basis. It must be understood, however, that these limitations will vary considerably taking into account a variety of situations.

5.2 In formulating regulations or rules governing flight time limitations the size of the crew complement and the extent to which the various tasks to be performed can be divided among the crew members should be taken into account; and in the case where adequate facilities for relief are provided in the aircraft in such a way that a crew member may have horizontal rest and a degree of privacy, flight duty periods could be extended.

Adequate rest facilities on the ground are required at places where relief periods are to be given. Also operators should give due weight to the following factors: traffic density; navigational and communication facilities; rhythm of work/sleep cycle; number of landings and take-offs; aircraft handling and performance characteristics and weather conditions.

6. Pro forma table

The following pro forma table is provided to illustrate one of many forms in which the para at Section II, 2.2.10.2 and Chapter 7, may be implemented.

Crew	Maximum flight duty period in 24 hours	Maximum flight time (hours)				Rest periods	
		Daily 24 hours	Monthly	Quarterly	Annually	Daily	Per week
Pilot-in-command							
1st Officer							