



GOVERNMENTOFINDIA

OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION

TECHNICAL CENTRE, OPP SAFDURJUNG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS

SECTION 7 – FLIGHT CREW STANDARDS

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Subject: Flight and Duty Time Limitations and Rest Requirements of flight crew engaged in scheduled/non-scheduled air transport operations and general aviation aeroplanes.

1. INTRODUCTION

ICAO Annex 6 Part I and III lays down the standards and recommended practices for management of fatigue for flight and cabin crew members.

This Civil Aviation Requirement (CAR) is issued under the provisions of Rule 42A and Rule 133A of the Aircraft Rules, 1937 and lays down the limitations for flight time, flight duty periods, duty periods and rest periods in respect of flight crew members of commercial, general, training and helicopter flying.

2. APPLICABILITY

The Flight and Duty Time Limitations and Rest Requirements contained in this CAR are applicable to operators of and flight crew engaged in scheduled/non-scheduled air transport operations and general aviation aeroplanes.

3. DEFINITIONS

3.1 **Augmented flight crew.** A flight crew that comprises more than the minimum number required to operate the aeroplane and in which each flight crew member can leave his or her assigned post and be replaced by another flight crew member, who shall hold qualifications which are equal to or superior to those held by the crew member who is to be replaced for the purpose of in-flight rest.

3.2 **Duty.** Any task that flight crew members are required by the operator to perform, including, for example, flight duty, administrative work, training, positioning and standby when it is likely to induce fatigue.

- 3.3 **Duty period.** A period which starts when a flight crew member is required by an operator to report for or to commence a duty and ends when that person is free from all duties.
- 3.4 **Fatigue.** A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental and/or physical activity) that can impair a crew member's alertness and ability to safely operate an aircraft or perform safety related duties.
- 3.5 **Fatigue Risk Management System (FRMS)** is a data-driven ongoing adaptive process based on appropriate knowledge of scientific principles and methods that can identify fatigue hazards and develop and evaluate mitigation strategies to manage any emerging fatigue inducted operational risks. It employs a multi-layer system of defences to manage operational fatigue risk proactively in which data related to crew alertness as well as operational flight performance are collected on a routine basis and analyzed in a timely manner.
- 3.6 **Flight Duty Period.** A period which commences when a flight crew member is required to report for duty that includes a flight or a series of flights and which finishes when the aeroplane finally comes to rest and the engines are shut down at the end of the last flight on which he/she is a crew member.
- 3.7 **Flight time.** The total time from the moment an aeroplane first moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight.
- Note.—“Flight time” as here defined is synonymous with the term “block to block” time or “chock to chock” time in general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight.*
- 3.8 **Home base.** The location nominated by the operator to the crew member from where the crew member normally starts and ends a duty period or a series of duty periods.
- 3.9 **Local night.** A period of eight hours falling between 22.00 and 08.00 local time.
- 3.10 **Neighbouring Countries.** Countries whose standard times falls within a band of 3 hours ($\pm 1:30$ hours on either side of India) i.e. countries covered in the standard time zone band of UTC+4 to UTC+7.
- 3.11 **Positioning.** The transferring of a non-operating crew member from place to place as a passenger at the behest of the operator.
- Note.—“Positioning” as here defined is synonymous with the term “Deadheading”.*
- 3.12 **Reporting time.** The time at which flight crew members are required by an operator to report for duty.

- 3.13 **Rest Period.** An uninterrupted and defined period of time during which a crew member is free from all duties and airport standby.
- 3.14 **Split Duty (Break)** means a period free of all duties, which counts as duty, being less than a rest period.
- 3.15 **Standby.** It is a defined period of time during which a flight crew member is required by the operator to be available to receive an assignment for a specific duty without an intervening rest period. However, it shall not include any time during which an operator requires a crew member to be contactable for the purpose of giving notification of a duty which is due to start 10 hours or more ahead.
- 3.16 **Ultra Long Range (ULR) Operations.** Continuous non-stop flights between the specific city pairs having a flight time of over 16 hours and duty periods between 18 and 22 hours.
- 3.17 **Unforeseen operational circumstance.** An unplanned event, such as unforecast weather, equipment malfunction, or air traffic delay that is beyond the control of the operator.
- 3.18 **Window of Circadian Low (WOCL)** is best estimated by the hours between 0200 and 0600 for individuals adapted to a usual day-wake/ night sleep schedule. This estimate of the window is calculated from scientific data on the circadian low of performance, alertness, subject report (i.e., peak fatigue), and body temperature. For flight duty periods that cross 3 or fewer time zones, the window of circadian low is estimated to be 0200 to 0600 home-base/ domicile time. For flight duty periods that cross 4 or more time zones, the window of circadian low is estimated to be 0200 to 0600 home-base/ domicile time for the first 48 hours only. After a crew member remains more than 48 hours away from home-base/ domicile time, the window of circadian low is estimated to be 0200 to 0600 referred to local time at the point of departure.

4. OPERATOR'S RESPONSIBILITY

- 4.1 Every operator shall establish a scheme for complying with the limitations for flight time, flight duty periods, duty periods and rest periods specified in this CAR in respect of flight crew members.
- 4.2 The scheme shall include the means for any variation from the specified limitations provided such variation provides an equivalent level of safety.
- 4.3 The scheme shall be included in the operations manual and submitted to the Director-General for approval.
- 4.4 The operator shall not require a flight crew member to operate an aeroplane if it is known or suspected that the flight crew member is fatigued to the extent that the safety of flight may be adversely affected.

4.5 No certificate holder may schedule any flight crewmember and no flight crewmember may accept an assignment, which shall exceed the prescribed limitations.

4.6 Operators shall ensure that persons concerned with the operations of aircraft are trained and educated regarding dangers of fatigue, the causes of sleepiness and importance of sleep and proper sleep habits.

5. FLIGHT CREW MEMBER'S RESPONSIBILITY

5.1 A flight crew member shall not operate an aeroplane when he or she knows that he or she is fatigued or feels unfit to the extent that the safety of flight may be adversely affected.

5.2 Flight crew members shall make best use of facilities and opportunities that are provided for rest and for the consumption of meals, and shall plan and use rest periods to ensure that they are fully rested.

6. REQUIREMENTS FOR DOMESTIC AND NEIGHBOURING COUNTRIES OPERATIONS

6.1 Daily maximum flight time limitations during any 24 consecutive hours:

Crew Complement	Maximum Flight Time Limitation/ Max Number of Landings*
Two-Pilot Operations	8 hours/ up to 6 landings
	<i>For day operations</i> 9 Hours/up to 3 landings
	<i>For night operations</i> 9 Hours/up to 2 landings

* Maximum Number of Landings is further dependent on Flight Duty Period.

6.2 Cumulative flight time limitations

Cumulative Period	Flight Time Limitation (Hours)
In 7 consecutive days	35
In 30 consecutive days	125
In 365 consecutive days	1000

6.3 Maximum Daily Flight Duty Period – Two Pilot Operations

6.3.1 Maximum Daily Flight Duty period for two pilot operation shall be as per the following table:

Maximum Daily Flight Duty Period (FDP) Limitation**	Maximum Number of landings	Maximum Flight Time Limitation
12.5 hours	2 for night operations	9 hours
	3 for day operations	
12 hours	4	8 hours
11.5 hours	5	
11 hours	6	

**** Reduction of Flight duty period due to operation in WOCL**

6.3.2 When the FDP starts in the WOCL, the maximum FDP stated in above table shall be reduced by 100 % of its encroachment up to a maximum of two hours. When the FDP ends in or fully encompasses the WOCL, the maximum FDP stated in above points shall be reduced by 50 % of its encroachment.

7. REQUIREMENTS FOR INTERNATIONAL OPERATIONS

7.1 **Daily maximum flight time limitations for international operations during any 24 consecutive hours:**

Crew Complement	Maximum Flight Time Limitation/ Max Number of Landings**
Two-Pilot Operations	10 hours/ up to 1 landings
	For day operations 9 Hours/up to 3 landings
	For night operations 9 Hours/up to 2 landings
Three-Pilot Operations	12 Hours/1 landing
Four-Pilot Operation	16 Hours/1 landing
Four-Pilot ULR Operations*	More than 16 hours

* ULR Operations needs specific approvals of DGCA on City Pairs and case-to-case basis

** Maximum Number of Landings are further dependent on Flight Duty Period

7.2 **Cumulative flight time limitations**

Cumulative Period	Flight Time Limitation (Hours)
In 7 consecutive days	40
In 30 consecutive days	125
In 365 consecutive days	1000

7.3 **Maximum Daily Flight Duty Period – Two Pilot Operations**

7.3.1 Maximum Daily Flight Duty period for two pilot operation shall be as per the following table:

Maximum Daily Flight Duty Period (FDP) Limitation**	Maximum Number of landings	Maximum Flight Time Limitation
13 hours	1	10 hours
12.5 hours	2 for night operations	9 hours
	3 for day operations	

**** Reduction of Flight duty period due to operation in WOCL**

7.3.2 When the FDP starts in the WOCL, the maximum FDP stated in above points shall be reduced by 100 % of its encroachment up to a maximum of two hours. When the FDP ends in or fully encompasses the WOCL, the maximum FDP stated in above points shall be reduced by 50 % of its encroachment.

7.4 **Augmented Crew**

7.4.1 The maximum flight duty period may be extended in accordance with the following table in case of the flight crew is augmented

Rest facility available	Maximum extension of the FDP	
	Augmented crew (3 Pilots)	Double crew (4 Pilots)
Rest seat	2H	4H
Bunk	4H	6H

(a) In flight, rest of less than 3 hours doesn't allow for the extension of the FDP.

- (b) The applicable Flight Duty Period may be increased up to a maximum of 16 hours in case of Rest Seat and up to a maximum of 18 hours in case of Bunk. In case of double crew, rest facilities shall be available for both pilots not on active duty.
- (c) In case of augmented/double flight crew, the division of duty and rest between the flight crew members being relieved will be kept in balance, which would be spelt out in detail in the Scheme of the operator.
- (d) Rest Seat will be at least a 'Business Class' seat reclining to at least 40° back angle to the vertical, outside the cockpit and separated from passengers by a dark curtain.
- (e) Crew shall be allowed to return to controls only after 30 minutes of waking after bunk/seat rest.

8. GENERAL REQUIREMENTS

8.1 An operator shall follow the requirements of this CAR based on type of flight being operated i.e. if all sectors of a flight are within the neighbouring countries, then requirements for 'domestic operations' shall be followed and in case even one sector of the flight falls in international operation then for the full/ entire flight requirements of 'international Operations' shall be followed.

8.2 **Duty Period:**

8.2.1 No operator shall assign and no flight crew member shall accept any duty to exceed:

- (a) 190 duty hours in any 28 consecutive days, spread evenly as practicable through out this period;
- (b) 100 duty hours in 14 consecutive days; and
- (c) 60 duty hours in any seven consecutive days.

8.3 **Minimum Rest**

8.3.1 The minimum rest, which must be provided before undertaking a flight duty period, shall be:

At least as long as the preceding duty period,

OR

- (a) 12 hours,
 - (b) 14 hours on crossing 3 time zones, or
 - (c) 36 hours on crossing 8 time zones
- whichever is the greater;

8.3.2 If the preceding duty period, which includes any time spent on positioning, exceeds 18 hours, then the ensuing rest period shall include a local night.

8.3.3 Period of transportation to and from an airport shall neither be counted towards duty time nor rest period. The operator shall include in the 'Scheme' the optimum time of transportation after taking into account various factors and on ensuring that the rest period does not get reduced below the minimum rest requirements.

8.4 **Weekly Rest:**

8.4.1 An operator shall ensure that the minimum rest is increased periodically to a weekly rest period, being a 36-hour period including two local nights, such that there shall never be more than 168 hours between the end of one weekly rest period and the start of the next.

8.5 **Rest after return to base:**

8.5.1 An operator shall ensure that effects on crew members of time zone differences will be compensated by additional rest as specified below.

8.5.2 Minimum rest including local nights shall be given, according to the table below, when coming back to home base, to any crew member who has been away from the home base in such a way that the WOCL had to be modified.

Time zone difference	Hours of rest	Local nights
4-7	36	2
8 and more	72	3

"Time zone difference" in this table is the time zone difference between the starting and finishing points of the initial duty."

8.6 **Reporting time.**

8.6.1 Crew report times shall be specified by the operator realistically, which reflect the time required to complete pre-flight duties, both safety and service-related, but shall not be less than 45 minutes, and

8.6.2 A standard allowance of 30 minutes for major operators and 15 minutes for others shall be added at the end of flight time to allow for the completion of checks and records.

8.6.3 For record purposes, the pre-flight report time shall count both as duty and as flight duty, and the post-flight allowance shall count as duty.

9. Split Duty (Break)

Consecutive hours of break	Maximum Extension of the FDP
Less than 3H	<i>NIL</i>
Between 3H and 10H	A period equal to half the consecutive hours break taken
>10H	No extension permitted

- (a) Post-flight and pre-flight duties will not be counted as part of rest
- (b) If the break is more than 6 consecutive hours or encroach on the WOCL, then operator will provide suitable accommodation
- (c) Parts of the FDP before and after the break shall not exceed ten hours.

10. STANDBY

10.1 General

10.1.1 Operators shall include 'Standby' as part of their regular rosters and concerned crew shall be kept notified.

10.1.2 In case of exigencies when 'Standby' duty may go beyond the roster, Operator shall ensure that concerned crew is notified in advance.

10.2 Standby Period

10.2.1 Standby period shall not extend beyond 12 hours. However, a maximum standby at airport (with or without sleeping quarters) shall not exceed 8 hours.

10.2.2 If the standby period is at the airport and

- (a) Standby culminates into a flight duty then the total period (i.e. 100%) shall be counted towards the flight duty period and also towards cumulative duty period
- (b) Standby does not culminate into a flight duty then the total period (i.e. 100%) shall be counted towards cumulative duty period

10.2.3 If the standby period is at home or in a hotel and culminates into duty

- (a) Within first 6 hours then no part of standby shall be considered as part of flight duty period or cumulative duty period
- (b) At 6 hours or later then flight duty period shall be reduced by 50% of the standby time.

10.2.4 If standby period is at home or in a hotel does not culminate into a duty then, 25% of its time shall be considered under cumulative duty.

10.3 **Rest period after Standby:**

- 10.3.1 When any period of standby finishes, during which a call-out has not occurred, at least 10 hours rest shall follow prior to the next duty period.
- 10.3.2 When standby culminates in to a duty, then the rest period shall be decided based on total period of duty i.e. the duty plus the percentage of standby counted for duty.

11. **POSITIONING**

- 11.1 All the time spent on positioning on the behest of the operator shall be counted as duty.
- 11.2 Positioning time shall be part of a flight duty period when it immediately precedes (i.e., without an intervening rest period) a flight duty period in which that person participates as a flight crew member.
- 11.3 Positioning after operating a flight duty period without an intervening rest period shall be counted for determining rest period.
- 11.4 Positioning shall not count as a landing for purposes of determining 'Flight Duty Period'.
- 11.5 Positioning shall be counted as a landing if, after a positioning journey, the crew member spends less than a minimum rest period at suitable accommodation provided by the operator, and then extends FDP using 'Split Duty'.

12. **UNFORESEEN OPERATIONAL CIRCUMSTANCES**

- 12.1 For an unplanned event, such as unforecast weather, equipment malfunction, or air traffic delay that is beyond the control of the operator 'Flight Time' and 'Flight Duty Period' may be extended as follows:
- (a) Flight Time by maximum of 1½ hours and FDP by maximum of 3 hours subject to a cumulative limit of maximum of 3 hours and maximum of 6 hours respectively in 30 consecutive days.
 - (b) Subject to the maximum limit of extension of FDP i.e. 3 hours on individual event and 6 hrs on cumulative basis, extension shall be decided between PIC and 'Head of Operations' of operator.
 - (c) PIC in consultation with the other crew members and cabin crew will convey their willingness (or consent) to the 'Head of Operations' for operating the flight. The PIC will submit the report to Head of Operations who will file to DGCA along with his comments.
- 12.2 Whenever the flight duty period gets extended, the rest period shall be pro-rata increased by twice the amount of extended time of flight duty period.

13. CONSECUTIVE NIGHT OPERATIONS

- 13.1 No operator operating passenger flights shall deploy a flight crew nor a flight crew shall undertake any duty between period embracing 0000 to 0500 hours local time if during the previous day he/she performed flight duty between the period embracing 0000 to 0500 hours local time;
- 13.2 Cargo operations shall be permitted during period embracing 0000 to 0500 hours for two consecutive nights provided:
- 13.2.1 The minimum rest period before the start of such a series of duties is 24 hours.
- 13.2.2 The duty shall not exceed 8 hours, irrespective of the sectors flown.
- 13.2.3 At the finish of such a series of duties crew members shall have a minimum of 54 hours free from all duties.
- 13.2.4 There shall not be 4 such duties in any 7 consecutive days.
- 13.2.5 Crew members shall be free from all duties by 2100 hours local time before covering the block of consecutive night duties, such that they may take a rest period during a local night.

14. RECORDS

- 14.1 To enable the operator to ascertain that the fatigue management system is functioning, as intended and as approved, records shall be kept for 18 months of the duties performed and rest periods provided so as to facilitate inspection by the operator's authorized personnel and surveillance/audit by DGCA officers.
- 14.2 The operator shall ensure that these records include for each flight crew member, at least:
- (a) the start, duration and end of each flight duty period;
 - (b) the start, duration and end of each duty period;
 - (c) rest periods; and
 - (d) flight time.
- 14.3 The operator shall also keep records of occasions when discretion was used by the PIC to extend the prescribed limits.
- 14.4 If discretion was used for similar reasons on more than 20 percent of occasions when a particular route or route pattern is flown, then the operator shall review and change the schedule or the crew scheduling arrangements so as to reduce the frequency at which such events occur.
- 14.5 In addition, DGCA may require submission of copies and analysis of records in the manner deemed fit.

- 14.6 Flight crew members shall maintain a personal record of their daily flight time, duty period, flight duty period and rest periods.
- 14.7 Above may be achieved through a foolproof, transparent, computerised system, for which there will be an online system with a link for DGCA to monitor. The operator shall evolve a system so that only designated officers of the operator and DGCA have access to the system. Further, the system shall have provision of 'audit trail' so that any change made in the data may be tracked down to its source.
- 14.8 The operator through the computerised system shall be able to ensure that flight crew member is well within the flight time, flight duty period, duty period and rest period requirements before permitting him to operate the flight.
- 14.9 No operator shall keep such records only on paper. Any violation of this provision shall attract penalties as laid down in relevant law including action against persons.
- 14.10 Operator shall evolve a mechanism by which personal records maintained by individual pilot are reconciled with the operator's records from time to time.

15. ULTRA LONG FLIGHTS

15.1 Definitions:

- (a) "Duty Flight Crew" means those members of the flight crew who are on duty in the cockpit.
- (b) "In-flight Rest Period" means a period of time within a flying duty time, which is to give a crew member an opportunity to rest before commencing or recommencing duty as a duty flight crew.
- (c) "Rostered Duty Assignment (RDA)" means a sequence of Flight Duty Periods, off-duty periods, standby duty periods, crew positioning and rest periods for which flight crew are rostered when assigned to operate a ULR flight.

- 15.2 Approval shall be given by DGCA for the operation of Ultra Long flights on case-to-case basis for specific city-pairs and the departure windows of the flights.
- 15.3 Operator shall submit a specific scheme in accordance with the provisions laid down in the following paragraph to DGCA for obtaining 'City Pair Specific' approval for ultra long haul operations.
- 15.4 DGCA may validate such flights for the crew alertness if the operator uses prescriptive regulations. It will, however, be preferable that the Operator adopts FRMS for continuously monitoring of the crew alertness.
- 15.5 Designated flight crew rest facilities shall be provided on board aircraft. These rest facilities shall comprise not less than two independent rest areas with horizontal bunks and shall provide an environment that is conducive to rest/sleep. The rest facilities shall be subject to the prior approval of the DGCA.

15.6 Each ULR flight is to be operated by no less than four (4) pilots of whom two (2) must be pilot-in-command qualified for the route. The duty flight crew shall comprise at least two pilots of which one crewmember is pilot-in-command qualified.

15.7 The Operations Manual shall contain specific instructions to ensure that the ULR flight meets the following requirements:

15.7.1 *ULR Pre-flight and In-flight Rest Planning*

(a) A scheme shall be established to provide guidance to the flight crew on the expected pre-flight preparations and in-flight rest to be taken. Flight crew are to be appropriately rested for the ULR flight.

(b) The in-flight rest plan shall provide for at least two (2) rest periods, one of which shall not be less than four (4) hours.

15.7.2 *ULR Pre-flight Rostering Requirements*

(a) The flight crew shall be acclimatised at base before undertaking a ULR RDA. Immediately prior to commencing the ULR RDA, the crew shall be rostered for a rest period of no less than 48 hours, which shall include two (2) local nights, free from flying duties.

15.7.3 *ULR Flight Rest Period Away from Base*

(a) In the ULR RDA, the scheduled period free of flying duties away from base shall be at least 48 hours, with at least two (2) local nights.

15.7.4 *Post ULR RDA Rest At Base Before Embarking on the Next Flight*

(a) The ULR flight crew shall be provided with four (4) consecutive local nights of rest free of duty on completion of the ULR RDA, before the crew may be rostered for another ULR flight or other flights.
