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The Government of the Hong Kong Special
Administrative Region

CAD 371

**THE AVOIDANCE OF FATIGUE IN
AIRCREWS**

CAD 371

The avoidance of fatigue in aircrews

This document contains standard provisions on which Hong Kong operators' "Approved Flight Time Limitation Schemes" are to be based.

Civil Aviation Department Hong Kong

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THE AVOIDANCE OF FATIGUE IN AIRCREWS

STANDARD PROVISIONS

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THE AVOIDANCE OF FATIGUE IN AIRCREWS

1. LEGAL BACKGROUND

- 1.1 Part VI of the Air Navigation (Hong Kong) Order 1995 [the Order] comprises Articles 53 to 56 and addresses the Fatigue of Crew. Operators and crew members are expected to be aware of the provisions of this legislation and their responsibilities under it.
- 1.2 In general terms the legislation is applicable to the operator and crew of an aircraft registered in Hong Kong which is either:
 - engaged on a flight for the purpose of public transport; or
 - operated by an air transport undertaking.
- 1.3 The operator of an aircraft operated for the purposes listed in para 1.2. above must present to the Director-General of Civil Aviation (DGCA), for his approval, a scheme for the regulation of the flight times of his crews (FTL Scheme). When approved by the DGCA the scheme must be published in the Operations Manual, or when an Operations Manual is not required by the Order, incorporated in a separate document. The Operations Manual, or separate document, shall be readily available to every person employed by the operator as a member of an aircraft crew. The Operator is further required to take all reasonable steps to ensure that the provisions of their approved FTL Scheme are complied with.
- 1.4 The approved FTL Scheme applies to all operating crew members on board the aircraft and not merely those carried to meet the minimum crew requirements set out in Part V of the Order.
- 1.5 Since the legislation requires operators to include in their FTL Scheme provisions for all crew members carried, this includes, apart from flight crew and cabin crew, crew members boarded for special purposes, such as loadmasters. While many of the standard provisions in this document may not sensibly apply to such crew members, a commonsense approach should be taken of their duty and rest periods. If their duties have a direct bearing on the safety of the operation, or if the aircraft commander assigns them duties in the interest of the safety of any passengers, provisions similar to those relating to cabin crew should be included in the FTL Scheme.
- 1.6 Holders of an Air Operator's Certificate utilising leased foreign registered aircraft will be directed under the provisions of Article 93 of the Order to comply with the requirements of the Order with respect to flight and duty time limitations.

2. OBJECTIVES OF APPROVED FTL SCHEMES

- 2.1 The objectives of a FTL Scheme are to ensure that crew members are adequately rested at the beginning of each flight duty period (FDP), and that the duration and timing of individual duty periods will enable them to operate to a satisfactory level of efficiency and safety in all normal and abnormal situations. The standard provisions set out in this document are therefore concerned solely with the prevention of fatigue and the maintenance of vigilance in flight. They are not intended to take account of commercial circumstances (including crew member basings), social considerations or lifestyle.

3. RESPONSIBILITIES OF OPERATORS

- 3.1 Operators are required by law to take all reasonable steps to ensure that the provisions of their approved FTL Scheme are complied with. The responsibility for making decisions concerning the interpretation and application of an operator's approved FTL Scheme, and for the processing of Commander's Discretion Reports, should be clearly defined and must rest in suitably qualified hands at a senior management level. The designated person or post shall be named in the Scheme.
- 3.2 Operators must ensure that all personnel involved in the application of their approved FTL Scheme appreciate the relationship between the frequency and pattern of rostered flight duty periods, rest periods and days off; and that due consideration is given to the cumulative effects of working long hours interspersed with minimum rest periods. Comprehensive guidance and instructions shall be included in the Operations Manual, or other relevant document, for the benefit of all staff concerned with the preparation and day-to-day management of rostering and scheduling. This shall include instructions on rostering practices and guidance on the physiological effects of disturbing circadian rhythms, extensive transmeridian flight, sleep deprivation and sleep disruption.
- 3.3 All flight crew shall be provided on induction, and periodically thereafter, with instruction on sleep strategy, fatigue management and fatigue countermeasures, and, where appropriate, on the physiological effects of extensive transmeridian flight and disturbing circadian rhythms. The distinction should be drawn between normal tiredness resulting from the physical and mental efforts of flight, and cumulative fatigue resulting from the interaction of sleep loss and circadian disruption which can lead to significant decreases in operational performance. Suitable material is available from NASA & other sources.

- 3.4 An operator with an extensive east-west route network should ensure, by the application of sensible physiological rostering practices, that his crews are not exposed during duty cycles to unnecessary circadian rhythm disruption. To this end, an individual crew member's roster should, as far as is practical, reflect the crew member's place of domicile. Other measures should include placing a limit on the time zone displacement from home base which may be rostered during a duty cycle.
- 3.5 Operators must ensure that planned schedules allow for flights to be completed within the maximum permitted flight duty period. The Civil Aviation Department (CAD), when assessing the planning of a schedule will take into account the time allowed for pre-flight duties, taxiing, the flight and turn-round times. However, it is recognised that on occasions a planned flight will experience unforeseen delays. Under these conditions, the operator may request the aircraft commander, within prescribed conditions, to extend an FDP; or the aircraft commander may at his own initiative do so.
- 3.6 Factors to be considered when constructing crew rosters should include:
- ◆ the undesirability of alternating day/night duties;
 - ◆ avoiding scheduling rest periods of between 18 and 30 hours;
 - ◆ the effect of consecutive flights through, or ending within, the window of circadian low;
 - ◆ the effect of consecutive transmeridian flights;
 - ◆ the notification of crews well in advance of days off;
- 3.7 Operators shall establish a means of communication with their crews (such as a rostering committee) to discuss basic roster concepts and the overall application of the provisions of the company approved FTL Scheme.
- 3.8 It is the responsibility of the operator to prepare duty rosters sufficiently in advance to provide the opportunity for crews to plan adequate pre-duty rest. Operators must establish minimum periods of notification of duty for operating crews, or where this is not practicable due to the nature of the operation, must establish in advance minimum periods of notification of days off, during which a crew member will not be required for any duties.

- 3.9 The operator must provide accommodation for crew members when away from home base which allows the crew member the opportunity to obtain adequate pre-flight rest.
- 3.10 When an operator employs a crew member on an irregular basis, then that operator must ensure that the crew member satisfies the provisions of the company approved FTL scheme. Furthermore, operators shall satisfy themselves that crew members who undertake other employment, if allowed by the operator, still have the opportunity to enjoy adequate pre-flight rest.

4. RESPONSIBILITIES OF CREW MEMBERS

- 4.1 Responsibility for preventing the onset of fatigue cannot rest on the operator alone.
- 4.2 The formal responsibilities of crew members are set out in Articles 55 and 56 of the Air Navigation (Hong Kong) Order, and crew members are expected to be familiar with these provisions. In general terms they prohibit a person acting as a crew member if he knows, or suspects, that he is suffering from, or having regard to the circumstances of the flight to be undertaken, is likely to suffer from fatigue as may endanger the safety of the aircraft. They are not intended to cover instances where normal tiredness resulting from the physical and mental efforts of flying duty is likely.
- 4.3 A crew member is also required to ensure that the operator is aware of his flight times during the preceding 28 days. Other provisions of the Articles set out the maximum number of flying hours which may be flown in any 28 day and 12 month period.
- 4.4 Individual crew members shall ensure that they are not in breach of their company's approved FTL scheme.
- 4.5 Crew members working on a freelance basis must maintain an individual record of their flying and duty hours which must be presented to an operator before undertaking a flying duty.
- 4.6 All crew members shall make optimum use of the opportunities and facilities for rest provided, and plan and use their rest periods properly. Crew members must recognise that the responsibility for being sufficiently rested before undertaking a flying duty remains entirely with the individual.
- 4.7 No person shall act as a member of the crew of an aircraft registered in Hong Kong or of a foreign registered leased aircraft to which an operator's scheme applies, if the individuals know, or suspect, that their physical or mental condition renders them temporarily unfit so to act.

5. APPLICATION OF THE STANDARD PROVISIONS

- 5.1 In order to gain approval of a FTL scheme an operator shall construct the scheme within the provisions set out in this document (“the standard provisions”).
- 5.2 It is incumbent on the operator to establish appropriate maximum flight duty periods (FDP) and minimum rest periods in accordance with the maxima and minima specified in this document. The essentials are identified by use of the words ‘shall’ or ‘must’, desirable features are introduced by the words ‘should’ or ‘may’.
- 5.3 The words ‘scheduled’, ‘planned’, ‘rostered’ are used interchangeably in this document and shall be construed as meaning what was intended to happen. However, when a crew member is called out from a rostered period of stand-by duty, the resulting duty undertaken shall not be considered as having been scheduled, planned or rostered.
- 5.4 Operators and crew members must be aware that the existence of any industrial agreement cannot in any way absolve either the operator or the crew member from observing any of the conditions contained within an approved FTL Scheme.

6. VARIATIONS TO THE STANDARD PROVISIONS

- 6.1 While operators are required to construct their schemes in accordance with the standard provisions, it is recognised that these provisions will not necessarily interact sensibly with every type of operation. In such circumstances operators may apply to incorporate variations from the standard provisions in their FTL Scheme. Approval to do so will only be given where an operator can show that, despite the variation, the level of protection against fatigue will, at least, be equivalent to that provided by the standard provision.
- 6.2 Variations from the standard provisions may be permanent in nature or temporary, and applicable only to a certain aircraft fleet, schedule, route, flight or series of flights. Any variation of a permanent nature must be incorporated in the approved scheme. Those of a temporary nature must be brought to the attention of crew members by incorporation in the operations manual, or other suitable operating instructions (e.g. ‘Notices to Crew’).
- 6.3 Operators requesting permanent incorporation into their scheme of any significant variation from the standard provisions will be required to show that consultation has taken place between the operator and their crews regarding the implementation of the variation(s).

7. DEFINITIONS

For the purpose of this document various terms used have the meanings defined below ascribed to them.

7.1 'Acclimatised'

If a flight crew member ends a duty period at a place where local time differs by more than 3 hours from his home base he shall straightaway be considered as "unacclimatised" for the purposes of an operator's approved Scheme.

An "unacclimatised" crew member will become "acclimatised" again if he returns to his home base no more than 48 hours after the start of a duty period or duty cycle which commenced at his home base;

OR

if he returns to home base more than 48 hours after having left it, has completed a recovery period at home base in accordance with Section 22 of this document.

7.2 'Cabin Crew'

In relation to an aircraft means a person on a flight for the purpose of performing in the interest of the safety of the passengers duties to be assigned by the operator or commander of the aircraft but who shall not act as a member of the flight crew.

7.3 'Dispatch Crew'

A fully qualified and current flight crew/cabin crew authorised to carry out pre-flight duties as defined by an operator.

7.4 'Domestic Day Off (DDO)'

A period at home base available for leisure and relaxation and free of all duties. A single DDO shall comprise a minimum of 34 continuous hours and include two local nights. Consecutive DDOs must be of at least 24 hours duration and shall include a further local night for each additional consecutive DDO. A Rest Period may be included as part of a DDO. [At the request of the individual crew member, and with the agreement of the operator, a DDO may be taken at other than his home base. In this case the crew member will be considered acclimatised to the place where the DDOs are taken, provided the conditions of paragraph 7.1 are met.]

7.5 **‘Duty Cycle’**

A series of duty periods undertaken between DDOs.

7.6 **‘Duty’ & ‘Duty Period’**

Any continuous period during which a crew member is required to carry out any task associated with the business of an aircraft operator. It includes any flight duty period, positioning, ground training, ground duties and standby.

7.7 **‘Extended Break (EXB)’**

A period away from home base, normally in accommodation provided by the operator, during which the crew member is free of all duties. An EXB shall comprise a minimum of 30 continuous hours. A rest period may form part of an EXB.

7.8 **‘Flight Crew’**

In relation to an aircraft means those members of the crew of the aircraft who respectively undertake to act as pilot and flight engineer.

7.9 **‘Flight Duty Period (FDP)’**

Any time during which a person operates in an aircraft as a member of its crew. It starts when the crew member is required by an operator to report for a flight. It finishes at on-chocks or engines off, or rotors stopped, on the final sector, or when a crew member last vacates a control seat and is free of all duty for the remainder of the flight, whichever is the earlier.

7.10 **‘Home Base’**

The place nominated by the operator to the crew member, or otherwise contractually agreed between them, from where the crew member normally starts and ends a rostered/planned duty and at which place, under normal conditions, the operator is not responsible for the accommodation of the crew member concerned.

7.11 **‘Late Night Period (LNP)’**

The period 0100 to 0659 hours home base time to which a crew member is acclimatised.

7.12 **‘Local Night’**

A period of 8 hours falling between 2200 hours and 0800 hours local time.

7.13 **‘Normal Operation’**

Any operation other than an “ultra long range” operation.

7.14 **‘Physiological Rostering’**

The rostering of Rest Periods in accordance with Section 21, paras 21.2.3. (i) & (ii).

7.15 **‘Positioning’**

The practice of transferring crews from place to place as passengers in surface or air transport at the behest of an operator.

7.16 **‘Recovery Period’**

A period free of duty following a duty cycle of length greater than 48 hours during which the crew member became unacclimatised. A rest period and DDO(s) may form part of a recovery period.

7.17 **‘Reporting Time’**

The time at which a crew member is required by an operator to report for any duty.

7.18 **‘Rest’**

The word rest shall be taken as meaning repose or sleep.

7.19 **‘Rest Period’**

A period of time before starting an FDP which is designed to give crew members adequate opportunity to rest before a flight.

7.20 **‘Rostered/Planned Duty’**

A duty period, or series of duty periods, with stipulated start and finish times, notified by the operator to crews in advance. These may comprise or form part of a duty cycle.

7.21 **‘Rostering Period’**

A number of consecutive weeks, usually 4, but defined by the operator.

7.22 **‘Sector’ & ‘Sector Time’**

The time between when an aircraft first moves from its parking position until it next comes to rest, after landing, on the designated parking position.

7.23 **‘Service Disruption’**

Unforeseen circumstances which occur during operations after the commencement of an FDP.

7.24 **‘Sleep Opportunity’**

A period which provides the opportunity to take at least 8 consecutive hours of horizontal rest in suitable accommodation.

7.25 **‘Split Duty’**

A flight duty period which consists of two or more sectors, separated by a period of rest which is less than a minimum rest period.

7.26 **‘Standby Duty’**

A period during which an operator places restraints on a crew member who would otherwise be off duty. 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.

7.27 **‘Suitable Accommodation’**

A well furnished bedroom which is subject to minimum noise, is well ventilated, and has the facility to control the levels of light and temperature.

7.28 **‘Travelling’**

All time spent by a crew member transiting between the place of rest, and the place of reporting for duty.

7.29 **‘Two Crew Aircraft’**

A fixed wing aircraft certificated to be flown by a minimum flight crew of two pilots.

7.30 **‘Three Crew Aircraft’**

A fixed wing aircraft certificated to be flown by a minimum flight crew of two pilots and a flight engineer, or three pilots.

7.31 **‘Ultra Long Range Operation’**

An operation by a two crew aircraft requiring three or more pilots involving a time difference of 6 hours or more between the places where the duty period began and ended.

7.32 **‘Unacclimatised’**

Not acclimatised.

7.33 **‘Week’**

A period of seven consecutive days starting at any set time and on any set day as specified and stated by the operator.

7.34 **‘Window of Circadian Low’**

The period 0200-0559 individual body clock time.

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8. **REPORTING TIMES**

- 8.1 Standard reporting times prior to flight must be specified by an operator. These must realistically take account of any longer than normal flight preparation duties, such as may be required for ultra long range operations, and also transfer times from the crew check-in point to the aircraft, and should not be less than 60 minutes. Pre-flight duties are part of the FDP but immediate post-flight duties are not. A period must be allowed for post-flight activities. The time spent between reporting for a flight and the completion of post-flight tasks determines the length of the duty period and hence the length of the subsequent rest period.
- 8.2 If an operator intends to utilise dispatch crews then the mechanism to be adopted must be included in the operator's scheme.

9. **RELIEF CREW QUALIFICATIONS**

- 9.1 At various places in this document the extension of an FDP is allowed by the boarding of extra flight crew members for the purpose of providing relief at the controls. When making use of these provisions operators must ensure that their aircraft are properly crewed at all times in flight. In this context "properly crewed" means that a control seat shall be occupied during flight only by a flight crew member:
- ◆ whose licence includes a valid aircraft rating certificate of test for the aircraft type being operated and which is appropriate to the functions he/she is to perform on that flight; and
 - ◆ who has been certified by the operator as competent to undertake the duties assigned to him/her on the flight.

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10. **IN FLIGHT RELIEF FACILITIES**

- 10.1 When the flight crew is augmented for the purposes of extending a standard flight duty period, a bunk or a comfortable reclining seat, separated and screened from the passengers and flight deck, shall be provided for the flight crew member(s) not at the controls. However, when in-flight relief is provided on ultra long range operations, bunks must be provided for the flight crew members not at the controls.
- 10.2 On normal operations, when seating arrangements in the passenger cabin ensure that the seat provided for the relieved flight crew member is not immediately adjacent to a seat occupied by a passenger, there shall be no requirement for screening.
- 10.3 In this document when reference is made to in-flight rest facilities this shall be taken as meaning the provision of facilities in accordance with 10.1. & 10.2. above.

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11. **TWO AND THREE CREW AIRCRAFT - NORMAL OPERATIONS**

For application of the provisions of this Section to cabin crew. See Section 32.

All operations other than two crew aircraft Ultra Long Range Operations (see Section 12).

11.1 **Standard Flight Duty Period - Acclimatised Flight Crew**

11.1.1 Table “A” below shall be used to determine the standard FDP for acclimatised flight crew of two and three crew aircraft.

Table “A” - Standard FDP for Acclimatised Flight Crew

Local time of Start	Sectors							
	1	2	3	4	5	6	7	8 or more
0700-0759	13	12¼	11½	10¾	10	9¼	9	9
0800-1259	14	13¼	12½	11¾	11	10¼	9½	9
1300-1759	13	12¼	11½	10¾	10	9¼	9	9
1800-2159	12	11¼	10½	9¾	9	9	9	9
2200-0659	11	10¼	9½	9	9	9	9	9

- NOTE:
1. If the planned FDP for a two crew aircraft includes a scheduled sector length in excess of 9 hours (8 hours if the sector extends through or ends within the period 0200 – 0559 hours at the local time where the FDP commenced), one additional pilot must be boarded who meets the Relief Crew Qualifications stated in Paragraph 9.
 2. For the maximum FDP following a reduced rest period see para 21.3.2.

11.2 **Standard Flight Duty Period - Unacclimatised Flight Crew**

11.2.1 Table “B” shall be used to determine the FDP for **unacclimatised** flight crew of two and three crew aircraft.

11.2.2 **Table “B” - Standard FDP for Unacclimatised Flight Crew**

Length of preceding rest (hours)	Sectors						
	1	2	3	4	5	6	7 or more
Up to 18	13	12¼	11½	10¾	10	9¼	9
18 - 30	11½	11	10½	9¾	9	9	9
over 30	13	12¼	11½	10¾	10	9¼	9

Notes under Table “A” also apply.

11.3 **Extended Flight Duty Period**

For application of the provisions of this Section to cabin crew see Section 32.

11.3.1 **Relief Crew Qualifications**

See Section 9.

11.3.2 **In Flight Relief Facilities**

See Section 10.

11.3.3 **Calculation of Extended FDP**

11.3.3.1 When the In Flight Relief Facilities & Relief Crew Qualifications are met, the extended FDP may be determined as follows.

11.3.3.2 A total of in-flight relief of less than three hours does not allow for the extension of a standard FDP, but where the total in-flight relief, which need not be consecutive, is three hours or more, then the crew member’s permitted standard FDP may be extended as follows:

When a bunk is available

When only a seat is available

A period equal to ½ the total relief; provided that the maximum FDP permissible shall be 18 hours.

A period equal to α the total relief; provided that the maximum FDP permissible shall be 15 hours.

- 11.3.3.3 No flight crew member may spend more than 8 consecutive hours at the controls without being relieved of all flight duty for at least one hour, or a total of more than 10 hours at the controls within a FDP. For the purposes of this sub para “at the controls” includes brief absences from the controls for physiological and duty reasons.
- 11.3.3.4 When calculating the period of in-flight relief, the maximum period on any flight cannot be greater than the actual block time less one hour. Scheduled ground transit time may not be taken into consideration.
- 11.3.3.5 If, on the day, extended unscheduled ground time occurs (such as a technical delay before departure or in transit) then, subject to the conditions set out in paragraph 13.6., rest taken on board the aircraft on the ground may count as in-flight relief at the appropriate seat or bunk rate, as the case may be.
- 11.3.3.6 Where a crew member undertakes a period of in-flight relief and after its completion is wholly free of duty for the remainder of the flight, that part of the flight following completion of duty may be classed as positioning and be subject to the controls on positioning detailed in Section 19.

11.4 Additional Requirements - Two Crew Aircraft

- 11.4.1 When an additional flight crew member is boarded solely for the purpose of complying with the requirement of Table A, Note 1 above, a comfortable seat or a bunk shall be provided for the flight crew member not at the controls.

12. TWO CREW AIRCRAFT - ULTRA LONG RANGE OPERATIONS

This Section does not apply to cabin crew. See Section 32.

Operations by two crew aircraft requiring three or more pilots involving a time difference of 6 hours or more between the places where the duty period began and ended.

12.1 Rostering Provisions

- 12.1.1 The FDPs referred to in paragraph 12.2. below apply regardless of acclimatisation or time of start.
- 12.1.2 Crewmembers should not be rostered to cross more than 12 time zones east/west of their home base in one duty cycle.
- 12.1.3 Crewmembers must normally be accorded rest periods in accordance with paragraph 21.2.3.

12.2 Flight Duty Period

12.2.1 Relief Crew Qualifications

See Section 9.

12.2.2 In-flight Relief Facilities

See Section 10.

12.2.3 Calculation of FDP

When the In Flight Relief Facilities & Relief Crew Qualifications are met, the FDP may be determined as set out below.

12.2.3.1 When three pilots are boarded the maximum FDP that may be scheduled is 13 hours.

12.2.3.2 When four pilots are boarded the maximum FDP that may be scheduled is 18 hours.

12.2.3.3 No more than 2 sectors shall be scheduled within an extended FDP but a third may be flown under the provisions governing SERVICE DISRUPTION (Section 14).

12.2.3.4 For each additional sector flown, the maximum FDP is to be reduced by 45 minutes.

12.3 **In-flight Relief**

12.3.1 When the provisions of this Section are applied, the division of duty and relief must be kept in reasonable balance, such that:

12.3.1.1 No crewmember receives less than three hours total relief, which need not be consecutive.

12.3.1.2 No flight crew member spends more than 8 consecutive hours at the controls without being relieved of all flight duty for at least one hour, or a total of more than 10 hours at the controls, within an FDP. For the purposes of this sub para “at the controls” includes brief absences from the controls for physiological and duty reasons.

12.3.2 If, on the day, extended unscheduled ground time occurs (such as a technical delay before departure or in transit) then, subject to the conditions set out in paragraph 13.6, rest taken on board the aircraft on the ground may count as in-flight relief.

12.3.3 Where a crew member undertakes a period of in-flight relief and, after its completion, is wholly free of duty for the remainder of the flight, that part of the flight following completion of duty may be classed as positioning and be subject to the controls on positioning detailed in Section 19.

13. **SPLIT DUTY – AIRCRAFT**

13.1 When an FDP consists of two or more sectors - of which one can be a positioning journey counted as a sector - but separated by a period of consecutive hours of rest that is less than a minimum rest period, then the FDP may be extended by the amounts indicated below.

<u>Period of Consecutive Hours of Rest</u>	<u>Maximum Extension of the FDP</u>
Less than 3	NIL
3 - 10	A period equal to half the hours of consecutive rest taken.

13.2 The portion of the FDP either side of the period of rest must not exceed 10 hours and no FDP utilising the provision of split-duty may exceed 18 hours.

13.3 Split duty may not be used to extend an FDP already extended by the use of an augmented crew.

13.4 The period of rest shall not include the time required for intervening post and pre-flight duties nor travel time to and from the place where rest is taken.

13.5 When the period of rest is less than 6 hours it will suffice if a quiet and comfortable place, not open to the public, is available. If the period of rest is more than 6 hours, or covers 3 hours or more of the period 2200-0800 local time at the place where it occurs, then suitable accommodation must be provided. Where security considerations make the latter requirement inadvisable the provision of suitable accommodation may be waived.

13.6 Only under the following circumstances may a period of rest within a split-duty be taken in an aircraft on the ground:

- ◆ The period of rest must be less than 6 hours.
- ◆ A comfortable reclining seat, or bunk, must be available for each resting crew member.
- ◆ There must be no passengers on board.
- ◆ There must be no cargo loaded or unloaded during the period of rest.

- ◆ Maintenance must not take place within the vicinity of resting crew members.
- ◆ The crews must have adequate control of the temperature and ventilation within the aircraft

These conditions must be included in an operator's FTL scheme.

14. SERVICE DISRUPTION

This Section does not apply to helicopter operations - see Section 30.

- 14.1 This provision is to cover unforeseen circumstances which occur during operations. It is not intended for use in regular practice, cannot be rostered and shall only apply once the flight crew member has commenced a rostered FDP.
- 14.2 In the case of service disruption the operator may request the aircraft commander to implement the provisions of this Section in order to extend an FDP, or exceptionally, to reduce a Rest Period, or the aircraft commander may at his own initiative decide to do so. The provisions of this Section will only apply to a reduction of a Rest Period as described in Section 21.
- 14.3 Requests made must be reasonable in the light of the prevailing circumstances. The persons/posts who may initiate such requests shall be listed in the operator's scheme. The CAD will need to be satisfied that these persons hold suitably senior posts.
- 14.4 The extension of an FDP following a reduced rest period shall only be made in exceptional circumstances. Aircraft commanders and those persons listed in the scheme (14.3 above) must be made aware of this requirement.
- 14.5 After receiving a request the aircraft commander, taking into consideration all relevant factors including the circumstances of the other crew members, and the over-riding consideration of safety, shall inform the operator of his decision. The aircraft commander may elect to work less than, and not necessarily to the full extent of, the provisions of 14.8 below. His decision in such matters shall be **final and unquestioned.**

- 14.6 The operator shall maintain a written record of each and every request made. The record must show the operator's reason for the request and the aircraft commander's decision. Where an aircraft commander decides to operate he must complete a Commander's Discretion Report (CDR) giving reasons for his decision. If the extension of an FDP exceeds 2 hours or follows upon a reduced rest period, or a rest period is reduced by more than 1 hour, then a copy of the written record and the CDR must be forwarded to the Flight Operations Inspectorate within 7 days of the aircraft's return to base.
- 14.7 The operator must preserve for a period of 12 months all CDRs and records of requests made.
- 14.8 In the case of service disruption the maximum FDP shall be calculated by adding 3 hours to the FDP otherwise available using the appropriate standard provisions. In the event that the standard FDP has already been extended by use of an augmented crew, or split duty, or follows upon a reduced rest period, then the maximum that can be added is 2 hours. These 3 and 2 hour extensions may only be exceeded in an emergency. In this respect, an emergency is a situation which in the judgement of the aircraft commander presents a serious risk to the health or safety of crew and passengers, or endangers the lives of others.

15. **LATE FINISHES/EARLY STARTS**

- 15.1 These provisions:
- ◆ Apply to acclimatised flight crew only.
 - ◆ Apply when a duty cycle contains an FDP which is preceded by one or more duty periods any part of which falls within the Late Night period.
 - ◆ Do not apply if all the duties within the duty cycle are ground duties.
 - ◆ Do not apply to FDP's which are delayed into the LNP by service disruption.
- 15.2 Not more than 3 consecutive periods that occur in the Late Night Period can be undertaken, nor may there be more than 4 such duties in any 6 consecutive days. When a crew member is occupying suitable accommodation provided by the operator, and the normal journey time from that accommodation to the reporting point at the airfield does not exceed 15 minutes, then 0659 home base time may be changed to 0559 home base time.

- 15.3 Except under the provisions of paragraph 15.6. below a flight crew member shall not be rostered for more than 3 consecutive duties falling within a LNP.
- 15.4 When a crew member is scheduled for consecutive FDPs which encroach upon the LNP the crew member must be free of all duties by 2100 hours home base time on the day preceding the first of these consecutive FDPs.
- 15.5 If either 3 consecutive FDP's or duty periods or more than 3 FDP's or duty periods worked within a 7 day period encroach upon an LNP then the subsequent rostered period free of duty must be of at least 48 hours duration and include two local nights.
- 15.6 Crew members employed on regular "overnight" duties may, subject to the following conditions, operate a block of up to 5 consecutive FDPs which encroach upon the LNP:
- The minimum rest period before the start of such a series of duties shall be 36 hours.
 - The FDP must not exceed 8 hours, irrespective of the sectors flown.
 - At the finish of such a series of duties crew members must have a minimum of 63 hours free from all duties.

16. **MIXED DUTIES**

16.1 **General**

When a crew member is required to report for duty in advance of the stipulated report time for a scheduled flight, to carry out a task at the behest of an employer, then the time spent on that task shall be part of the subsequent FDP.

16.2 **Aircraft and Helicopter Flying**

When both aircraft and helicopter flying is carried out the more restrictive flight and duty time limitations shall apply.

16.3 Mixed Simulator and Aircraft Flying

When a flight crew member flies in the simulator, either on a check or training flight, or as a Training Captain or Instructor, and then within the same duty period flies as a crew member on a public transport flight, all the time spent in the simulator is counted in full towards the subsequent FDP, and for helicopters towards the daily flying hour maxima. The FDP allowable is calculated from the report time of the simulator detail. For a Training Captain or Instructor rendering a test or training the simulator flying does not count as a sector. For a flight crew member undergoing training or testing the flight simulator detail counts as a sector.

16.4 Mixed Single Pilot/Two Pilot Operations

In one duty period a pilot may fly as a single flight crew up to the point where the total flying and duty hours reach the single pilot FDP limit. The pilot may then continue beyond the single pilot FDP limit on a two flight crew operation up to the two flight crew FDP and flying hour maxima, but may only fly as a co-pilot.

17. TRAVELLING TIME

17.1 Travelling time, other than that time spent on positioning, shall not be counted as duty.

17.2 Travelling time, from home to departure aerodrome, if long distances are involved, is a factor influencing any subsequent onset of fatigue. If the journey time from home to normal departure airfield is usually in excess of 1½ hours, crew members should consider making arrangements for temporary accommodation nearer to base.

17.3 When crew members are required to travel from their home to an aerodrome other than the one from which they normally operate, any travelling time over and above the journey time from home to the usual operating aerodrome shall be classed as positioning.

18. DELAYED REPORTING TIME

18.1 When a crew member is informed of a delay to the reporting time due to a changed schedule, before leaving the place of rest, the FDP shall be calculated as follows. The maximum FDP shall be based on the more limiting time band of the planned and the actual report time and shall start at the actual report time. When the delay is 4 hours or more, the FDP shall start 4 hours after the original report time.

- 18.2 When an operator informs a crew member before leaving the place of rest of a delay in reporting time of 10 hours or more ahead, and that crew member is not further disturbed by the operator until a mutually agreed hour, then that elapsed time is classed as a rest period. If, upon the resumption of duty, further delays occur then the appropriate criteria in this paragraph and paragraph 18.1 above shall be applied to the re-arranged reporting time.

19. POSITIONING

- 19.1 All time spent on positioning at the behest of an operator shall count as duty, but (except as set out in 19.3. below) positioning does not count as a sector when calculating the FDP. In these circumstances the FDP commences not later than the time at which the crew member reports for the positioning journey, or positions in accordance with sub-paragraph 17.3.
- 19.2 There is no limit to the amount of positioning which may be undertaken following the completion of a FDP other than compliance with the maximum cumulative duty hours limitation.
- 19.3 If, after a positioning journey, the crew member spends less than a minimum rest period at suitable accommodation provided by the operator, and then carries out a FDP, the positioning must be counted as a sector if a split duty is claimed when calculating the allowable FDP. If it is not, then a split duty FDP cannot be used.
- 19.4 On occasion, an operator may recover a crew member from an overseas airfield on a positioning flight on the seventh consecutive day of duty.

20. STANDBY DUTY

- 20.1 The time of start, end and nature of the standby duty must be defined and notified to crew members.
- 20.2 The maximum duration of standby duty shall be 12 hours.
- 20.3 If a crew member is called out from standby, the standby duty will cease when that individual reports at the designated reporting point.

- 20.4 When a crew member is on standby duty on immediate readiness at an airport, then the allowable FDP is calculated using the start time of the standby duty.
- 20.5 When standby is undertaken at home, or in suitable accommodation provided by the operator, and a crew member is called out for duty, the following will apply:
- ◆ if **acclimatised**, the FDP shall be based upon the more limiting time band of the start of the standby duty and the actual report time, and shall start at the actual report time;
 - ◆ if **unacclimatised**, The FDP shall be based upon the length of the preceding rest periods in Table 'B' (paragraph 11.2.2), and shall start at the actual report time;
 - ◆ except that, in **either** case, when the report time is 4 hours or more after the start of the standby duty the FDP shall start at the 4 hour point regardless of the actual report time.
- 20.6 When a crew member is called out from standby the total duty period is the sum of the time spent on standby (up to a maximum of 4 hours), the FDP worked and the time allowed for post flight duties, including any positioning.
- 20.7 The method of adding time spent on standby to cumulative totals is stated in Section 25.

21. REST PERIODS

See Section 32 for cabin crew.

This Section does not apply to helicopter operations - see Section 30.

21.1 General

- 21.1.1 The aircraft operator must notify all crew members in good time of a flight duty period so that sufficient and uninterrupted pre-flight rest can be obtained. When away from base the operator must provide the crew with the opportunity and the facilities for adequate pre-flight rest. The operator must provide suitable accommodation. When flights are carried out at such short notice that it is impracticable for an operator to arrange suitable accommodation, then this responsibility devolves to the aircraft commander.

21.1.2 Crew members who inform an operator that they are having difficulty in achieving adequate pre-flight rest must be given the opportunity to consult an aviation medical specialist.

21.1.3 When unacclimatised, no more than 3 consecutive rest periods, or total of 4, may be rostered within the 18-30 hour band in any 14 day period. If 3 consecutive, or total of 4, rest periods are so rostered, any subsequent EXB rostered within the same 14 days shall be of at least 34 hours duration. This limitation does not apply to rostering of standby duties.

21.2 **Rest Periods - Within a Duty Cycle or When Table “X” Does Not Apply**

21.2.1 The provisions of this paragraph apply to rest periods taken within a duty cycle and at other times when Table “X” (paragraph 22.5) does not apply.

21.2.2 (i) When the time difference between the places at which the preceding duty period began and ended is less than 6 hours the minimum rest period which must be provided following the end of that duty period and the commencement of the next FDP shall be:

- at least as long as the preceding duty period, or
- 12 hours

whichever is the greater.

In the case when the rest period earned by a crew member is 12 hours, and suitable accommodation is provided by the operator, then that rest period may be reduced by one hour. In such circumstances, if the travelling time between the aerodrome and the accommodation is more than 30 minutes each way then the rest period must be increased by the amount the total time spent travelling exceeds one hour. The room allocated to the crew member must be available for occupation for a minimum of 10 hours. **This sub-paragraph does not apply to rest periods that exceed 12 hours.**

(ii) If the preceding duty period, which includes any time spent on positioning, exceeded 18 hours, then the ensuing rest period must include a local night.

21.2.3 When the time difference between the places at which the preceding duty period began and ended is 6 hours or more the minimum rest period which must be provided following the end of that duty period and the commencement of the next FDP shall be determined as follows:

(i) where the rest period commences within the first 72 hours of the start of a duty cycle, the rest period shall be:

- ◆ at least as long as the previous duty period, or
- ◆ a period of sufficient length to provide a sleep opportunity of at least 8 hours within the period 2200-0800 home base time of the individual crew member, or
- ◆ 14 hours;

whichever is the greater; or

- ◆ scheduled in accordance with (iii) below.

(ii) where the rest period starts later than 72 hours after the commencement of a duty cycle the rest period shall be:

- ◆ at least as long as the previous duty period, or
- ◆ a period of sufficient length to provide a sleep opportunity of at least 8 hours within the period 2200-0800 local time at the place where rest was last taken, or
- ◆ 14 hours

whichever is the greater; or

- ◆ scheduled in accordance with (iii) below.

(iii) as an alternative to (i) and (ii) above an operator may provide a rest period which is:

- ◆ at least as long as the previous duty period, or
- ◆ 34 hours

whichever is the greater.

NOTE: In case of major service disruption occurring during the preceding duty period, then to preserve roster stability/service regularity and at the aircraft commander's discretion, the provisions of Section 14 may apply provided the rest periods are in accordance with 21.2.2.

21.2.4 The rest period following a sequence of reduced rest and then an extended FDP, cannot be reduced.

21.2.5 After being called out from a standby duty, the length of minimum rest shall be determined by the length of standby duty plus the duty period completed.

21.3 **Reduction of a Rest Period**

21.3.1 The provisions of this paragraph do not apply to recovery periods taken between duty cycles.

21.3.2 An aircraft commander may, at his discretion, and after taking note of the circumstances of other members of the crew, reduce a rest period but only insofar as the room allocated to the crew member must be available for occupation for a minimum of 10 hours. The exercise of such discretion shall be considered exceptional and must not be used to reduce successive rest periods. If the preceding FDP was extended due to service disruption, the rest period may be reduced, provided that the subsequent allowable FDP is also reduced by the same amount.

21.3.3 Whenever an aircraft commander reduces a rest period, it shall be reported to his employer on a Commander's Discretion Report (CDR), in a format acceptable to the CAD. If the reduction is more than 1 hour, then the operator shall submit the CDR together with the operator's comments, to the CAD, within 7 days of the aircraft's return to base.

22. RECOVERY PERIODS

This Section does not apply to cabin crew - see Section 32.

This Section does not apply to helicopter operations - see Section 30.

22.1 General

- 22.1.1 The recovery periods scheduled in Table “X” below apply when an unacclimatised flight crew member returns to home base on completion of a duty cycle of duration greater than 48 hours.
- 22.1.2 The provisions of Table “X” are not intended to apply each and every time a flight crew member touches home base *during* a duty cycle.
- 22.1.3 A rest period may form part of a recovery period.
- 22.1.4 DDOs contained within a recovery period shall count toward the overall entitlement of DDOs provided that:
- ◆ where 6 or more time zones were crossed during the preceding duty cycle, then the first DDO within the recovery period shall not count toward meeting the 7 DDOs in 4 week requirement - see para 23.1.

22.2 Reduction of Recovery Period

- 22.2.1 The provisions of this paragraph may be applied only to preserve the stability of a crew member’s notified roster. They may only be exercised once in any 28 day period, and shall apply only to a recovery period of scheduled length of 4 DDOs or more.
- 22.2.2 Subject to the above, in order to minimise roster instability when service disruption delays a crew member’s return to home base at the end of a duty cycle:
- ◆ the operator may reduce the crew member’s recovery period required by Table “X” by one DDO; and
 - ◆ the recovery period may be reduced by a further DDO (to an overall maximum reduction of 2 DDOs) with the agreement of the individual crew member.

22.3 Length of Recovery Period between Duty Cycles

22.3.1 The duration of the recovery period which must be given to a flight crew member following return to home base is given by Table “X” below.

22.3.2 The intent of Table “X” is to ensure that a flight crew member’s body clock is recovered to home base local time before the commencement of the next duty cycle.

22.3.3 The Table is constructed using following assumptions:

- ◆ the body clock moves at 1 hour per day when its circadian rhythm is disrupted;
- ◆ the body clock moves at one hour per day when it resynchronises to local time;
- ◆ maximum circadian disruption (12 hours) requires 7 nights recovery;
- ◆ no account is taken for gradual time zone displacement or a gradual recovery to home base.

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22.4 **Table “X” - Instructions for Use**

- ◆ Enter Table “X” below at the row which gives the length in hours of the completed duty cycle;
- ◆ Move across to the column which gives the maximum time zone displacement achieved during the duty cycle;
- ◆ The figure in italics shows the required length of recovery period in DDO(‘s).

22.5

Table “X”

Length of Completed Duty Cycle (hours)	Maximum Time Zone Displacement during Duty Cycle				
	4 Zones	5 Zones	6 Zones	7 Zones	8-12 Zones
48+ to 72	<i>1_{DDO}</i>	<i>1_{DDO}</i>	<i>2_{DDOs}</i>	<i>2_{DDOs}</i>	<i>2_{DDOs}</i>
72+ to 96	<i>3_{DDOs}</i>	<i>3_{DDOs}</i>	<i>3_{DDOs}</i>	<i>3_{DDOs}</i>	<i>3_{DDOs}</i>
96+ to 120	<i>3_{DDOs}</i>	<i>4_{DDOs}</i>	<i>4_{DDOs}</i>	<i>4_{DDOs}</i>	<i>4_{DDOs}</i>
120+ to 144	<i>3_{DDOs}</i>	<i>4_{DDOs}</i>	<i>5_{DDOs}</i>	<i>5_{DDOs}</i>	<i>5_{DDOs}</i>
144+	<i>3_{DDOs}</i>	<i>4_{DDOs}</i>	<i>5_{DDOs}</i>	<i>6_{DDOs}</i>	<i>6_{DDOs}</i>

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23. **DOMESTIC DAYS OFF (DDO)**

This Section does not apply to cabin crew - see Section 32.

This Section does not apply to helicopter operations - see Section 30.

23.1 **Overall Entitlement**

Flight crew members:

- shall not be rostered for duty on more than 6 consecutive days before being given a DDO or EXB; but
- may be positioned to their home base on the seventh day, provided they are then allocated at least 2 consecutive DDOs, and
- shall have 2 consecutive DDOs in any consecutive 14 days following the previous 2 consecutive DDOs, and
- shall have a minimum of 7 DDOs in any consecutive 4 weeks, and
- shall have an average of at least 8 DDOs in each consecutive 4 week period, averaged over three such periods.

24. **FLYING HOUR LIMITATIONS**

This Section does not apply to cabin crew - see Section 32.

This Section does not apply to helicopter operations - see Section 30.

24.1 A person shall not act as a member of the flight crew of an aircraft if at the beginning of the flight the aggregate of all previous flight times:

- during the period of 28 consecutive days expiring at the end of the day on which the flight begins exceeds 100 hours; or
- during the period of 12 months, expiring at the end of the previous month exceeds 900 hours.

25. DUTY HOUR LIMITATIONS

This Section does not apply to cabin crew - see Section 32.

This Section does not apply to helicopter operations - see Section 30.

25.1 General

For the purposes of this Section the various periods of consecutive days referred to herein shall start at 0001 hr Hong Kong local time. However, when an operator has a significant number of flight crew based overseas he should, if practical, use the based flight crew's midnight home base local time of start when calculating the running cumulative duty hours.

25.2 Maxima

The maximum duty hours for flight crew, shall not exceed:

- ◆ 55 hours in any consecutive 7 days, but may be increased to 60 hours, when a rostered duty covering a series of duty periods, once commenced, is subject to unforeseen delays. This 7 day, 60 hour limit may be further exceeded by a maximum of 10 hours provided this 10 hour exceedence is used solely for the purpose of positioning a crew member back to his home base prior to commencing domestic days off or taking rest in accordance with Table 'X' (paragraph 22.5).
- ◆ 95 hours in any 14 consecutive days
- ◆ and 190 hours in any 28 consecutive days

Provided that -

- ◆ for every duty period containing an FDP where the time zone difference between the places at which the FDP began and ended is 6 hours or more, the individual crew member's 28 day allowable maximum cumulative total shall be reduced by 8 hours.

25.3 Calculation of cumulative duty hour totals

Duty hours shall be added to cumulative totals in accordance with the following:-

To count in full:

- ◆ Duty periods and FDPs, plus subsequent post-flight duties
- ◆ All standby duty, except that specified below

- ◆ The time spent on positioning

To count as half the time on duty:

- ◆ The standby duty, when the period of notice given to the crew member by the operator before reporting for duty, is treble or more the specified minimum report time.
- ◆ The standby duty when undertaken at home, or in suitable accommodation provided by the operator, takes place during the period 2200 to 0800 hours, and the crew member can take undisturbed rest and is not called out for duty.

25.4 **Accounting for periods away from flying duties**

When a crew member is not rostered for either standby or flying duties for 28 or more consecutive days then any duty hours worked need not be added to cumulative totals. However, when a crew member is anticipated to return to either standby or flying duties the duty hours worked in the 28 days preceding that duty must be recorded. Before allocating a flying duty to a crew member the operator must be satisfied that crew member is in compliance with the scheme.

26. **COURSES AND GROUND DUTIES AWAY FROM HOME BASE**

- 26.1 The standard provisions with respect to DDOs (Section 23) and the application of Table 'X' (paragraph 22.5) above may be varied without reference to CAD to the extent necessary to facilitate the attendance of flight crew members at extended ground courses overseas and while undertaking other ground duties away from home base.
- 26.2 After completion of the course or ground duties, and before allocating a flying duty to a crew member, the operator must be satisfied that crew member is in compliance with his approved FTL scheme. In some cases this may require the allocation of a Recovery Period in accordance with Table "X" before flying duties may be undertaken.

27. RECORDS TO BE MAINTAINED

- 27.1 Records for the duty and rest periods of all flying staff must be kept. These records shall include:

For each crew member:

- ◆ The beginning, end and duration of each duty or flight duty period, and function performed during the period. Duration of each rest period prior to a flight duty or standby duty period. Dates of days off. Cumulative totals of duty.

For each flight crew member:

- ◆ Daily, rolling 28 day and 12 month totals of flying hours.

Records shall be preserved for at least 12 calendar months from the date of the last relevant entry.

- 27.2 Additionally, operators shall retain all aircraft commanders' discretion reports of extended flight duty periods and reduced rest periods for a period of at least six months after the event.

28. BLOCK TIMES

- 28.1 The block and sector times used by an operator in the application of his approved flight time limitation scheme must reflect actual times achievable in operation. On some sectors the block time used may be critical in triggering a provision of the operator's approved scheme, such as the requirement for augmented crew or, being scheduled tightly within the maxima and minima set out in an operator's FTL Scheme, cause regular exceedence of the maximum allowable FDP. Operators must maintain records of the number of occasions on which such achieved sector times cause the use of commander's discretion, and forward the Commander's Discretion Reports involved to CAD. These records are to be reviewed monthly and used to adjust where necessary the crew rostering requirements.
- 28.2 If 15% or more flights over a 2 month period have actual block times which exceed by more than 15 minutes the block times used in the application of the approved scheme, then the block times used must be adjusted to bring these exceedences within the 15% limit.
- 28.3 The CAD will conduct periodic and spot checks on operators' records and aircraft commanders' reports to determine if the planning of flight schedules and duty is compatible with the limitations provided for in the operator's scheme.

29. SINGLE PILOT OPERATIONS – AIRCRAFT

29.1 General

All foregoing Sections of this document apply unless specifically stated to the contrary or the context requires otherwise.

29.2 Mixed Single Pilot/Two Pilot Operations

In one duty period a pilot may fly as a single flight crew up to the point where the total flying and duty hours reach the single pilot FDP limit. The pilot may then continue beyond the single pilot FDP limit on a two flight crew operation up to the two flight crew FDP and flying hour maxima, but may only fly as a co-pilot.

29.3 Maximum Standard Flight Duty Period

29.3.1 Table “Y” below shall be used to calculate the FDP for single pilot operation of fixed wing aircraft.

Table “Y” - Standard FDP Single Pilot - Aircraft

Local time of Start	Sector							
		2	3	4	5	6	7	8 or more
0600-0659	10	10	10	10	9¼	8½	8	8
0700-1259	11	11	11	11	10¼	9½	8¾	8
1300-1759	10	10	10	10	9¼	8½	8	8
1800-2159	9	9	9	9	8¼	8	8	8
2200-0559	8	8	8	8	8	8		8

NOTE: For the maximum FDP following a reduced rest period see para 21.3.

30. HELICOPTER OPERATIONS

30.1 General

All foregoing Sections of this document apply to helicopter operations unless specifically stated to the contrary or the context requires otherwise.

30.2 Maximum Standard Flight Duty Period

Table “Z” below shall be used to calculate the FDP for single pilot and two pilot operation of helicopters. The table also shows the maximum flight time allowable within the associated FDP.

Table “Z” Standard FDP & Associated Flying Hours – Helicopters

Local time of Start	SINGLE PILOT		TWO PILOTS	
	Maximum Flight Duty Period (Hours)	Maximum Flight Time (Hours)	Maximum Flight Duty Period (Hours)	Maximum Flight Time (Hours)
0600 - 0659	9	6	10	7
0700 - 0759	10	7	11	8
0800 - 1359	10	7	12	8
1400 - 2159	9	6	10	7
2200 - 0559	8	5	9	6

30.3 Additional Limits

30.3.1 Repetitive Short Sectors

Crews flying repetitive short sectors at an average rate of 10 or more landings per hour, shall have a break of at least 30 minutes away from the helicopter within any continuous period of 3 hours.

30.3.2 Off-Shore Shuttles

After 3 hours shuttle operations between off-shore installations in conditions other than day VMC, a rest of 30 minutes free of all duty shall be allowed.

30.3.3 Aircraft and Helicopter Flying

When both aircraft and helicopter flying is carried out the more restrictive flight and duty time limitations shall apply.

30.3.4 Mixed Single Pilot/Two Pilot Operations

In one duty period a pilot may fly as a single flight crew up to the point where the total flying and duty hours reach the single pilot FDP limit. The pilot may then continue beyond the single pilot FDP limit on a two flight crew operation up to the two flight crew FDP and flying hour maxima, but may only fly as a co-pilot.

30.4 **Extension of Flight Duty Period by Split Duty**

30.4.1 The calculation of a permitted FDP does not rely on the number of sectors flown, but to increase an FDP as allowed for in this paragraph then at least one sector must be flown before any extension is permitted. The extensions allowed are set out below:

<u>Consecutive Hours Rest</u>	<u>Maximum Extension of the FDP</u>
Less than 2	NIL
2 - 3 (see NOTE)	One hour
3 – 10	A period equal to ½ the consecutive hours rest taken.

NOTE: Consecutive hours of rest between 2 and 3 hours shall be used once only in any single FDP.

30.4.2 The period of rest shall not include the time allowed for immediate post flight and pre-flight duties. When the period of rest is less than 6 hours it will suffice if a quiet and comfortable place, not open to the public, is available. Rest cannot be taken in the helicopter. If the period of rest is more than 6 consecutive hours, then suitable accommodation must be provided.

30.5 Aircraft Commander's Discretion to Extend A Flight Duty Period

30.5.1 An aircraft commander may, at his discretion, and after taking note of the circumstances of other members of the crew, if carried, extend an FDP beyond that permitted in paragraph 30.2., provided he is satisfied that the flight can be safely made. The extension shall be calculated according to what actually happens, not on what was planned to happen. An extension of 3 hours is the maximum permitted, except in cases of emergency. In this context an emergency is a situation which in the judgement of the aircraft commander presents a serious risk to the health or safety of crew and passengers, or endangers the lives of others.

30.5.2 An aircraft commander is authorised to exercise his discretion in the following circumstances and to the limits prescribed below:

- ◆ In an FDP involving 2 or more sectors, up to a maximum of 2 hours discretion may be exercised prior to the first and subsequent sectors.
- ◆ In a single sector FDP and prior to the last sector in a multi-sector FDP, an aircraft commander may use the maximum amount of discretion permitted.

30.5.3 An aircraft commander may exercise discretion to extend an FDP following a reduced rest period, only exceptionally, and then only to the extent necessary to allow for unforeseen circumstances that become apparent during the last sector.

30.6 Rest Periods

30.6.1 Crew members will be notified in good time of an FDP so that sufficient and uninterrupted pre-flight rest can be obtained. When away from base opportunities and facilities for adequate pre-flight rest must be provided by the operator in suitable accommodation. When flights are carried out at such short notice that it is impracticable for the operator to arrange suitable accommodation, then this responsibility devolves to the aircraft commander.

- 30.6.2 The minimum rest period which must be taken before undertaking a FDP shall be:
- ◆ at least as long as the preceding duty period, or
 - ◆ 12 hours, whichever is the greater.
- 30.6.3 In the case when the rest period earned by a crew member is 12 hours, and suitable accommodation is provided by the operator then that rest period may be reduced by one hour. In such circumstances, if the travelling time between the aerodrome and the accommodation is more than 30 minutes each way then the rest period will be increased by the amount the total time spent travelling exceeds one hour. The room allocated to the crew member will be available for occupation for a minimum of 10 hours. *This subparagraph does not apply to rest periods that exceed 12 hours.*
- 30.6.4 If the preceding duty period, which includes any time spent on positioning, exceeded 18 hours, then the ensuing rest period must include a local night.
- 30.6.5 After being called out from a standby duty the length of the minimum rest period shall be determined by the length of standby duty, plus any time spent on positioning, and any FDP completed.
- 30.6.6 Crew members who inform the Company that they are having difficulties in achieving adequate pre flight rest will be given the opportunity to consult an aviation medical specialist.

30.7 **Reduction of a Rest Period**

An aircraft commander may, at his discretion, and after taking note of the circumstances of other members of the crew, if carried, reduce a rest period, but only insofar as the room allocated to the crew member must be available for occupation for a minimum of 10 hours. The exercise of such discretion must be considered exceptional and must not be used to reduce successive rest periods. If the preceding FDP was extended, the rest period may be reduced, provided that the subsequent allowable FDP is also reduced by the same amount. In no circumstances may an aircraft commander exercise discretion to reduce a rest period below 10 hours at accommodation.

30.8 Days Off

30.8.1 Wherever possible, and if required by the crew member, days off should be taken in the home environment. A single day off shall include two local nights, and shall be of at least 36 hours duration. A planned rest period may be included as part of a day off.

30.8.2 Crew members shall:

- not work more than 6 consecutive days, and
- have 2 consecutive days off following a period of 6 consecutive days duty, and
- have 2 consecutive days off in any consecutive 14 days, and have at least 3 days off in any consecutive 14 days, and
- have a minimum of 7 days off in any consecutive 4 weeks, and
- have an average of at least 8 days off in each consecutive 4 week period averaged over 3 such periods.

NOTE: A single day off can only be allocated when 5 or less consecutive days duty have been worked.

30.9 Flying Hour Limitations

30.9.1 The maximum number of flying hours a pilot may be permitted to undertake are as follows:

Single Day	-	Table "Z"
Any 3 consecutive days	-	18 hours
Any 7 consecutive days	-	30 hours
Any 28 consecutive days	-	90 hours
Any 3 consecutive 28 day periods	-	240 hours
Any 12 month period	-	800 hours

30.9.2

Table “Z”

Local Time of Start	Single Pilot		Two Pilots	
	Maximum Length of Flying Duty Period (Hours)	Maximum Flying Time (Hours)	Maximum Length of Flying Duty Period (Hours)	Maximum Flying Time (Hours)
0600-0659	9	6	10	7
0700-0759	10	7	11	8
0800-1359	10	7	12	8
1400-2159	9	6	10	7
2200-0559	8	5	9	6

30.10 Duty Hour Limitations

Maximum duty hours for flight crew shall not exceed :

60 hours in any 7 consecutive days; and
200 hours in any 28 consecutive days

30.11 Reporting Exercise of Discretion

30.11.1 Whenever an aircraft commander extends an FDP it shall be reported on a Commander’s Discretion Report (CDR), in a format acceptable to the CAD. If the extension is greater than 2 hours, or discretion is exercised after any reduced rest period, then the operator will submit the CDR, together with operator’s comments, to the Flight Operations Inspectorate, within 7 days of the event.

30.11.2 Whenever an aircraft commander reduces a rest period, it shall be reported to the company operations management on a CDR. If the reduction is more than 1 hour, then the operator will submit the CDR together with the operator’s comments to the Flight Operations Inspectorate, within 7 days of the event.

31. AIR AMBULANCE FLIGHTS

31.1 Dedicated Air Ambulance

When carrying out an Air Ambulance flight, the allowable Flight Duty Period (FDP) extracted from the table in the Company's approved FTL Scheme may be increased by up to a maximum of 4 hours ("extended Air Ambulance FDP"), subject to all the following conditions being met:

- 31.1.1 Where an FDP is extended under the terms of this provision, a qualified medical attendant must accompany the flight.
- 31.1.2 The only passengers that may be carried in addition to the patient and medical attendants are the immediate family or next of kin. One close friend only may be carried in lieu of any immediate family or next of kin.
- 31.1.3 The crew must have had the full entitlement of rest relating to the preceding duty prior to starting an air ambulance flying duty.
- 31.1.4 The use of Commander's discretion to further extend the FDP, beyond the extra 4 hours permitted, may be exercised only to off-load/deliver the patient or organ to the destination. Such discretion cannot be used after the patient or organ has been off-loaded. A Commander's Discretion Report must be submitted to the CAD.
- 31.1.5 Following an extended Air Ambulance FDP the appropriate full rest period must be taken.
- 31.1.6 At least 48 hours must elapse between the end of one extended Air Ambulance FDP and the start of another Air Ambulance FDP.
- 31.1.7 A pilot can only fly 3 extended Air Ambulance FDPs in any 28 consecutive days.
- 31.1.8 The relevant duty records must show where an FDP was conducted in accordance with Air Ambulance Flights.
- 31.1.9 The use of split duty to extend the FDP is not permitted.

31.2 **Combined Public Transport/Air Ambulance**

On the day, if an operator wishes to use an aircraft and crew for a combination of Public Transport and Air Ambulance work then the FDP specified must be that obtained from the table in the main scheme. Extension of the allowable FDP by the use of split duty and Commander's discretion, as stated in the main scheme, is allowed. The extension permitted for dedicated Air Ambulance flights (in paragraph 31.1 above), does not apply in this case.

NOTE: Reference to 'extended Air Ambulance FDP' in this Section means any extension beyond the maximum of 3 hours allowed under 'Service Disruption' - see Section 14.

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32. PROVISIONS RELATING TO CABIN CREW

This Section does not apply to helicopter operations.

32.1 General

32.1.1. The provisions set out in this section apply to all cabin crew employed as crew members and not only those cabin crew carried to meet the provisions of the Air Navigation (Hong Kong) Order.

32.1.2. The provisions of an operator's scheme which are applicable to cabin crew, shall generally follow those set out in this document for flight crew members, but with the differences set out in the following paragraphs.

32.2 Flight Duty Period (FDP)

32.2.1. **Subject to paragraph 32.2.1.2 the FDP for cabin crew on Normal Operations shall not exceed the number of hours set out in Tables C and D below:**

32.2.1.1. Table C - FDP for Acclimatised Cabin Crew

Local Time of Start	Sectors							
	1	2	3	4	5	6	7	8 or more
0700-0759	14	13¼	12½	11¾	11	10¼	10	10
0800-1259	15	14¼	13½	12¾	12	11¼	10½	10
1300-1759	14	13	12½	11¾	11	10¼	10	10
1800-2159	13	12¼	11½	10¾	10	10	10	10
2200-0659	12	11¼	10½	10	10	10	10	10

Table D - FDP for Unacclimatised Cabin Crew

Length of Preceding Rest (hours)	Sectors						
	1	2	3	4	5	6	7 or more
Up to 18	14	13¼	12½	11¾	11	10¼	10
18 - 30	12½	12	11½	10¾	10	10	10
over 30	14	13¼	12½	11¾	11	10¼	10

Note: Tables C and D should be entered using the local time of start of the **Flight Crew** scheduled to operate the flight. The cabin crew FDP commences at the actual sign-on time.

32.2.1.2. **When in-flight relief of three or more hours (which need not be consecutive) is provided for cabin crew on Normal Operations the FDPs set out in Tables C and D in paragraph 32.2.1.1 may be extended as follows:**

<u>When a bunk is available</u>	<u>When only a seat is available</u>
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A period equal to one half of the total relief; provided that the maximum FDP shall be 19 hours.

A period equal to one third of the total relief; provided that the maximum FDP shall be 16 hours.

32.2.1.3. When calculating the period of in-flight relief, the maximum period on any flight cannot be greater than the actual block time less one hour. Scheduled ground transit time may not be taken into consideration. If, on the day, extended unscheduled ground time occurs (such as a technical delay before departure or in transit) then, subject to the conditions set out in paragraph 13.6, rest taken on board the aircraft on the ground may count as in-flight relief.

32.2.2. **In respect of Ultra Long Range (ULR) operations, where bunks are available for at least 50% of the cabin crew boarded, the cabin crew shall receive bunk rest as follows:**

32.2.2.1.

FDP	Minimum Bunk Rest
14 hours and up to 16 hours	3 hours
More than 16 hours and up to 17 hours	3½ hours
More than 17 hours and up to 18 hours	4 hours
More than 18 hours and up to 19 hours	4½ hours

32.2.2.2. The division of duty and rest throughout the FDP shall be kept in reasonable balance among cabin crew.

32.2.2.3. The maximum FDP shall be 19 hours regardless of acclimatisation or time of start.

32.2.2.4. No more than two sectors shall be scheduled but a third may be flown under the provisions governing Service Disruption (Section 14).

32.2.2.5. When calculating the period of in-flight relief, the maximum period on any flight cannot be greater than the actual block time less one hour. Scheduled ground transit time may not be taken into consideration. If, on the day, extended unscheduled ground time occurs (such as a technical delay before departure or in transit) then, subject to the conditions set out in paragraph 13.6, **bunk** rest taken on board the aircraft on the ground may count as in-flight relief.

32.3 **Standby Duty**

The combined sum of standby time and subsequent FDP can be 1 hour longer than that permitted for flight crew (see Section 20).

32.4 **Rest Periods**

The rest period scheduled for a cabin crew shall be:

- ◆ as long as the preceding duty period less one hour, or
- ◆ 11 hours

whichever is the greater.

32.5 **Recovery Periods**

The provisions of Section 22 and Table “X” do not apply. Cabin crew completing a Duty Cycle of length 120 hours or more during which the maximum time zone displacement was more than 6 time zones shall be rostered for a recovery period of not less than 2 Days Off - this period must include 3 local nights. A rest period day off may form part of a recovery period.

32.6 **Days Off**

- ◆ shall not be rostered for duty on more than 6 consecutive days between Days Off; but
- ◆ may be positioned to their home base on the seventh day, provided they are then allocated at least 2 consecutive Days Off, and
- ◆ shall have 2 consecutive Days Off in any consecutive 14 days following the previous 2 consecutive Days Off, and
- ◆ shall have a minimum of 7 Days Off in any consecutive 4 weeks, and
- ◆ shall have an average of at least 8 Days Off in each consecutive 4 week period, averaged over three such periods.

Note: In this context “Days Off” means periods free of all duties available for leisure and relaxation. A single Day Off shall include 2 local nights. Consecutive Days Off shall include a further local night for each additional consecutive Day Off. A rest period may form part of a Day Off.

32.7 **Flying Hour Limitations**

The annual and 28 day limits on flying hours listed in Section 24 do not apply.

32.8 **Duty Hour Limitations**

The maximum duty hours for cabin crew shall not exceed:

- ◆ 60 hours in any consecutive 7 days, but may be increased to 65 hours when a rostered duty covering a series of duty periods, once commenced, is subject to unforeseen delays;
- ◆ 105 hours in any 2 consecutive weeks;
- ◆ 210 hours in any 4 consecutive weeks.