



The Cathay Pilots Union

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The Director-General of Civil Aviation
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6th December 2007

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Dear Mr Liu

Cathay Pacific Airways Approved Flight Time Limitation Scheme (CPA AFTLS)

Thank you for your reply, dated 16th November reference (149) in A/OPS/CPA/7, to our letter dated 2nd October that responded to our original query dated 10th September.

Our request for your interpretation already followed communications with the Company. Their response to our Case 1 was "*it's legal*" and their response to our Case 2 ended:

.... submitted the circumstances of this case to the HKCAD for review. They have informed me that the Company interpretation is sound, and in their view is following the spirit and letter of the AFTLS and HKCAD371.

We understand from your letter that you need further amplification on why there may have been a contravention of the provisions relating to the avoidance of fatigue. Please see the attachment.

The material concludes:

- The Cathay Pilots Union believes that the new reserve provisions in the current CPA AFTLS are contrary to both the CAD 371 "Avoidance of Fatigue in Aircrews" provisions and, moreover, the Air Navigation Order.



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- The Cathay Pilots Union believes that using Normal Rest to comply with the limitations of Table R “Minimum Required Rest Period” following ULR is contrary to the current CPA AFTLS, the CAD 371 “Avoidance of Fatigue in Aircrews” provisions and, moreover, the Air Navigation Order.

Yours sincerely

for The CPU

Att



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ATTACHMENT TO CAD LETTER DATED 6th DECEMBER 2007

CASE 1 - RESERVE CALL OUT FOR ULTA LONG RANGE OPERATION

Pattern:

Pilot commences reserve block and called out on Day 3 after 5h14m duty for a ULR to Europe. Time between call out and duty recommencing = 11h41m. Time between reserve start and FDP end = 30h25m.

Day	Duty	Start (HKT)	End (HKT)	Total Duty*
1	R	0600	1800	12:00
2	R	1100	1800	7:00
3	R CX293 HKGFCO	0600	1114	5:14
		2255		(grey period=11:41)
4	STD 0005		1255	14:00

Time from Reserve Start to FDP End= 30:25

Amplification:

In December 2004, CAD approved a new AFTLS for Cathay Pacific Airways. One notable feature was that it included radically revised reserve provisions. Previously, reserve took account of an individual's WOCL by varying the maximum allowable FDP according to the time of reporting for duty. Furthermore, the maximum useful time on reserve was limiting because the FDP started once having been on reserve for 4 hours (the "4-hr clock"). This practice followed extensive scientific evidence and operational experience in the UK (CAP371) and was further refined in CAD371. Another fatigue-reducing feature was that the minimum required rest period between duties was normally 12 hours.

The new trial practice introduced a "grey period" between call-out and duty re-start, when the crew member is expected to report for duty within 2¼ hours of call-out. It was expected that the maximum duty from reserve start would have been:

$$=12 \text{ (maximum reserve)} + 2\frac{1}{4} \text{ (travelling time)} + 18 \text{ (ULR FDP)} = 32\frac{1}{4} \text{ hours.}$$

However, the new AFTLS does not specify 2¼ hours as the maximum time between call-out and reporting for duty, neither does it specify that the minimum rest time between reserve end and a subsequent FDP should remain 12 hours. In other words, the "grey period" extends to anytime between 2¼ and 12 hours. What this



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means in practice is that a crew member effectively operates 24 hours' reserve blocks over a 6-day period and is unable to plan to rest properly prior to *any* FDP.

The Cases below show examples, including the extreme, of not having the "grey period" properly limited in the CPA AFTLS.

Case 1a - "Reasonable" Maximum ULR Reserve

Day	Duty	Start (HKT)	End (HKT)	Total Duty
1	R	0600	1800	12:00
2	R	1100	1800	7:00
3	R CX123 HKGABC	0600 1215	1000	4:00 (grey period=2:15)
4			0400	15:45
Time from Reserve Start to FDP End=				22hrs

This example shows a ULR operation following a reserve call-out as per the previous AFTLS. As the maximum allowable ULR FDP is 18 hours and the FDP "clock" commences after 4 hours on reserve, then the maximum allowable ULR duty period will always be 22 hours.

Case 1b - "Extreme" ULR Reserve

Day	Duty	Start (HKT)	End (HKT)	Total Duty
1	R	0600	1800	12:00
2	R	1100	1800	7:00
3	R	0600	1759	11:59 (grey period=11:59)
4	CX123 HKGABC	0558	2358	18:00
Time from Reserve Start to FDP End=				41:58

This shows a ULR after a call-out at the extremes of the maximum reserve and the maximum "grey period". If the grey period was 1 minute longer then it would count as a Minimum Rest of 12 hours. Hence, under the new AFTLS, the maximum period between reserve start and FDP end is extended from 22 to 42 hours.



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Case 1c - "Interim" ULR Reserve

Day	Duty	Start (HKT)	End (HKT)	Total Duty
1	R	0600	1800	12:00
2	R	1100	1800	7:00
3	R CX123 HKGABC	0600 2200	1400	8:00 (grey period=8:00)
4			1600	18:00

Time from Reserve Start to FDP End= 34hrs

This example shows a ULR callout after an interim arbitrary 8 hours on reserve followed by a "grey period" of 8 hours. The total time from start to end is 34 hours. This case is similar to the Case 1 - the originally queried Reserve-HKG-FCO flight. What this example shows is that any combination of reserve and "grey period" can combine so that a crew member is effectively on 24 hours' reserve: if the crew member starts reserve at 0600L he can be called to operate at 0600L the next day - or any time before. In other words, one cannot plan adequate rest prior to an FDP because the crew member can be called out to operate an FDP that can end anything up to 42 hours later.

Case 1d - "Interim" Regional Reserve

Day	Duty	Start (HKT)	End (HKT)	Total Duty
1	R	0600	1557	09:57 (grey period=7:18)
2	CX412/PX HKGICN	2315		
3			0342	
	CX873 ICNHKG	0818	1157	12:42

Time from Reserve Start to FDP End= 29:57

This case is an actual example flown in 2006 and demonstrates that the problem in planning adequate pre-flight rest is not confined to ULR operations. A regional pilot commenced reserve, was called out after nearly 10 hours and had to wait more than 7 hours before commencing the FDP. He then positioned to ICN, waited 4½ hours on the ground before returning to HKG. As he started reserve early in the morning he could reasonably have expected to operate a Normal Operation in accordance with Table A. He would have planned his pre-duty rest accordingly. However, he was then given significantly less than a Minimum Rest Period prior to



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reporting for duty to position and operate. He operated throughout his WOCL without the opportunity for proper rest for over 30 hours.

Under the previous AFTLS, he would have run out of maximum Flight Duty Period at 2100 local - some 2 ¼ hours before he actually reported for duty!

Assessment:

CAD371 "The Avoidance of Fatigue in Aircrews" stipulates that:

- *The objectives of an 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 {Para 2.1};*
- *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... 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. {Para 3.2};*
- *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 {Para 3.8};*
- *In order to gain approval of an FTL scheme an operator shall construct the scheme within the provisions set out in this document {CAD371} ("the standard provisions") {Para 5.1}.*
- *... operators are required to construct their schemes in accordance with the standard provisions... 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 protections against fatigue will at least be equivalent to that provided by the operator {Para 6.1}; and,*
- Reserve, or standby, is defined {Para 7.6} as a Duty. A crew member is either undergoing a Rest Period or a Duty Period. Reserve Duty cannot be counted as a suitable Rest Period.

Consequently, the current AFTLS is not constructed within the standard provisions of CAD371 (Para 5.1), which is a requirement to gain proper approval.

Assuming that a Variation has been granted to CPA, we are not aware of any additional fatigue protections that have been added to counter the loss of the "4-hour clock"; nor are we aware of any further specialist medical advice that supersedes the medically-approved CAD371. Therefore, there is no equality in the



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levels of fatigue protections provided; once again, the current AFTLS does not comply with the requirements of CAD371 (Para 6.1) to gain proper approval.

Furthermore, the *Air Navigation Order (Hong Kong) Order 1995* {"AN(HK)O"} states:

An operator of an aircraft shall not cause or permit any person to fly therein as a member of its crew if he knows or has reason to believe that that person is suffering from, or, having regard to the circumstances of the flight to be undertaken, is likely to suffer from, such fatigue while he is so flying as may endanger the safety of the aircraft or of its occupants.

Company personnel are required to be conversant with the management of the avoidance of fatigue (CAD 371 Para 3.2). Clearly, the examples {Cases 1b-1d above} provide inadequate opportunity for crews to plan adequate pre-duty rest on a continual call-out basis - effectively 24-hour reserve. Flight crew are more likely than not to suffer from fatigue in those patterns.

Conclusion:

The Cathay Pilots Union believes that the new reserve provisions in the current CPA AFTLS are contrary to both the CAD 371 "Avoidance of Fatigue in Aircrews" provisions and, moreover, the Air Navigation Order.



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Case 2 - ROSTERED DUTY FOLLOWING POSITIONING FLIGHT

Pattern:

Pilot commences reserve block and immediately called out for London operation followed by a Positioning sector with less than Minimum Required Rest at outport. Commences reserve on Day 4 following 16h40m rest period.

Day	Duty	Start (HKT)	End (HKT)	Total Duty*
25 Apr	R3B 251 HKGLHR STD 2355	1800 2245	1804	00:04
26 Apr			1315	14:30
27 Apr	254 LHRHKG PX STD 05:35	0435	1820	13:45
28 Apr	R2B	1100	2300	12:00
29 Apr	R2B	1100	2300	12:00
30 Apr	G			

**Note: Total Duty times as calculated by CPA*

Amplification:

The pilot concerned communicated with the Company and the sequence of correspondence was:

Pilot:

On Saturday 28th April, I had several discussions with Crew Control and the Duty Operations Manager relating to Minimum Required Rest Periods, specifically the minimum Rest Period in London prior to my return Positioning Flight. My calculation is that a Sleep Opportunity was required to comply with Minimum Rest.

1. Please specify the Minimum Required Rest Period in London following my FDP and prior to Positioning.
2. Please explain your calculation to help me understand.

CPA:

Answers are as follows:

1. Minimum Required Rest Period = Nil
2. A Rest Period is not required prior to Positioning other than in compliance with maximum Cumulative Duty Hours limitations.
Please refer to AFTLS 20.2



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Note: However, you did receive a Rest Period in LON prior to PXing back. A Physiological Rest is required at some stage after the HKG-LON operating sector, but this can be given at any time before the next FDP. You received Normal Rest in LON, and Physiological Rest on return to HKG. Refer AFTLS 16.2

Pilot:

Thank you for your reply of 3rd May explaining how the Company interprets and applies the AFTLS. Unfortunately, I am still at variance with your interpretation especially on your Point (2). Furthermore, I believe that the AFTLS is clear and unambiguous, as is its intent, especially regarding Rest. I have included provisions from the AFTLS for ease of reference.

My interpretation of the pattern is different:

- A. It was a Normal Operation throughout. Therefore, I conclude that more Rest was required prior to commencing Reserve on Saturday 28th April.
- B. However, in the alternative - if your interpretation is correct and Physiological Rest was required - I again conclude that more Rest was required prior to commencing Reserve on Saturday 28th April.

We do agree that a Rest Period is not required prior to Positioning *{AFTLS 7.26: a Rest Period is only required prior to an FDP}*. We also agree that a Minimum Required Rest Period was not given in LON prior to Positioning.

Case A

My starting point is that AFTLS 20.4 is applicable because Positioning followed a FDP.

1. A minimum Rest Period would be one that permits the pilot to operate a FDP. In that case, Physiological Rest would have been required *{AFTLS 7.19 & 22 Table R}*.
2. As the Rest Period in LON was not Physiological Rest then Positioning followed a FDP with less than a minimum Rest Period. Hence, it is deemed to be one continuous Duty Period. *{AFTLS 20.4}*.
 - Your "Note" to your Answer 2 says that Normal Rest was received in LON. Normal Rest cannot be applicable as the Local Time difference is 7 hours from Hong Kong. *{AFTLS 7.17, 22.5 Table R}*.
 - Normal Rest would not have permitted the pilot to operate a FDP. Therefore, again, AFTLS 20.4 applies.
3. As the return to Hong Kong was one continuous Duty Period, the total Duty Period was 43hr 42min from Actual Report until ATA on blocks plus 30 minutes.
4. There was no time difference between the place(s) (Hong Kong) where the Duty Period started and finished.
5. Therefore, I conducted a Normal Operation *{AFTLS 7.16, 7.38}*.
6. Prior to the next FDP I would need Normal Rest *{AFTLS 7.17}*.
7. The Minimum Required Rest Period would be *"the longer of the length of the preceding Duty Period..." = 43 hr 42min {AFTLS 22.5 Table R}*.
8. The earliest Report for an FDP would have been 14.09 HKT on Sunday 29th April, which is after the commencement of reserve at 11.00HKT Saturday 28th April.



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Case B

My starting assumption is that your interpretation is correct: *"Physiological Rest is required at some stage after the HKG-LON operating sector, but this can be given at any time before the next FDP...Refer AFTLS 16.2."*

1. My logic above (Case A 1-3) still applies.
2. Assume that prior to the next FDP I would need Physiological Rest.
3. The Minimum Required Rest Period would be *"the longest of the length of the preceding Duty Period..."* = 43 hr 42min {AFTLS 22.5 Table R - less than 72 hours}.
4. The earliest Report for an FDP would have been 14.09 HKT on Sunday 29th April, which is after the commencement of reserve at 11.00HKT Saturday 28th April.

The crux in either case is the application of AFTLS 20.4; as you concede in your Answer 1 that Minimum Required Rest was not given in London then AFTLS 20.4 applies. Accordingly, in either event, I conclude that I would not have been able to operate a flight if I had been called out from Reserve on 28/29th April 2007. I would be grateful if you could advise me of any errors in my methodologies.

References:

AFTLS:

7. DEFINITIONS

7.7 Duty Period

Any continuous period during which a crew member is required to carry out Duty. It starts and finishes in accordance with the provisions specified in 8.

7.16 Normal Operation

Any operation other than an Ultra Long Range operation.

7.17 Normal Rest

A Rest Period required after the completion of a Duty Period where the Local Time difference between the places where the Duty Period started and finished is less than six hours.

7.19 Physiological Rest

A Rest Period normally required after the completion of a Duty Period where the Local Time difference between the places where the Duty Period started and finished is six hours or more.

7.20 Positioning

The practice of transferring crew members from place to place as passengers in surface or air transport at the behest of the Company.

7.26 Rest Period

A period of time before starting a Flight Duty Period which is designed to give crew members adequate opportunity to rest before a flight.

7.32 Sleep Opportunity

A period which provides the opportunity to take at least eight consecutive hours of horizontal rest in Suitable Accommodation.

7.38 Ultra Long Range Operation

An operation by a Two Crew Aircraft requiring three or more pilots involving a time difference of six hours or more between the places where the Duty Period starts and finishes.



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16. ULTRA LONG RANGE OPERATIONS

16.2 Flight Crew members will be afforded Physiological Rest in accordance with Table "R" after completing a Duty Period involving a time difference of six hours or more between the places where the Duty Period started and finished, and prior to the commencement of the next FDP.

20. POSITIONING

20.4 When Positioning follows a FDP with less than a minimum Rest Period taken between the FDP and Positioning, this will be deemed to be one continuous Duty Period.

22. REST PERIODS

22.5 Minimum required Rest Periods will be in accordance with Table "R".

Table "R"

Minimum Required Rest Period		
Normal Rest	Physiological Rest ^{Note 5}	
Local Time difference between the places where the preceding Duty Period started and finished is less than six hours	Local Time difference between the places where the preceding Duty Period started and finished is six hours or more	
	Rest starts less than seventy two hours after the start of the Duty Period that resulted in becoming Unacclimatised	Rest starts seventy two hours or more after the start of the Duty Period that resulted in becoming Unacclimatised
The longer of <ul style="list-style-type: none"> the length of the preceding Duty Period ^{Note 1, Note 2} twelve hours ^{Note 3} 	The longest of <ul style="list-style-type: none"> the length of the preceding Duty Period ^{Note 2} fourteen hours a period sufficient to allow a Sleep Opportunity ^{Note 4} within the period 2200 to 0800 Home Base Local Time 	The longest of <ul style="list-style-type: none"> the length of the preceding Duty Period ^{Note 2} fourteen hours a period sufficient to allow a Sleep Opportunity ^{Note 4} within the period 2200 to 0800 Local Time at place of Rest
	OR as an alternative	
	The longer of <ul style="list-style-type: none"> the length of the preceding Duty Period ^{Note 2} thirty four hours 	



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CPA:

I have studied your paper, but my position remains unchanged.

I will admit that both CAD371 and our own AFTLS could do with some clarification of this particular issue; if nothing else it would save a lot of time dealing with this type of query. One problem is that 16.2 is in a separate section from the section on Rest Periods. It would be clearer if it were appended as a note to Table R. However, its position in the document does not diminish its validity.

It states, quite categorically, that a physiological rest is required after a Duty Period involving a time difference of six or more hours, but only before the next FDP, and not necessarily immediately after the end of the Duty Period involving the time zone crossing. By considering two different scenarios in your paper, I assume that you concede this point, since in your scenario B you make the assumption that this is indeed the case. However, in scenario B, you go on to suggest that unless the Rest Period immediately after the Duty is a Physiological Rest, it cannot be considered a Rest Period at all. I cannot agree with this.

The definition of a Rest Period is "a period of time before starting a Flight Duty Period which is designed to give crew members adequate opportunity to rest before a flight." Therefore the period of time between the end of your HKG-LHR FDP and the positioning sector back to HKG is not in the strictest sense, a Rest Period. However, and here is the crux of the matter, if we took that approach then periods of rest between sim duties and ground duties would not be subject to the rules on rest, because technically they are not Rest Periods either. Of course, as you will be aware, we give Normal Rest between such duties. This is a long-established and accepted practice. If it were to be challenged, which it has not been because it works to the interest of pilots, we would be forced to go to the HKCAD to review the definition of a Rest Period, and some of the rules surrounding Rest.

In your case, I reiterate that a period satisfying the rules on Normal Rest was given between the operated flight and the positioning sector, and therefore the positioning sector is classed as a separate duty from the operated flight.

As in all cases of dispute over the AFTLS, besides considering whether the letter of the rules has been adhered to, I also ask myself whether the Company position is reasonable from a common sense point of view. In this particular case you performed an operating duty of around 14:30, had a period free from all duty of around 15:30, during which you were provided with hotel accommodation, then positioned back to HKG involving approximately 13 hours in, I assume, a FCL seat, and then had a period free of all duty of about 16:30 which included a sleep opportunity in your normal body clock time, before commencing Reserve. I do not think that anyone could consider this to be unreasonable or unduly arduous.

For confirmation, and avoidance of doubt, I have submitted the circumstances of this case to the HKCAD for review. They have informed me that the Company interpretation is sound, and in their view is following the spirit and letter of the AFTLS and HKCAD371.

Pilot:

Thanks for that. It seems to be somewhat complicated by the fact that you have not explained or mentioned AFTLS Para 20.4 at all.

Please could you clarify how the Company and CAD interpret and apply Para 20.4?

CPA:

I believe that I have already explained. If a normal rest is achieved, then 20.4 does not apply.



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Assessment:

CAD371 "The Avoidance of Fatigue in Aircrews" stipulates that:

- *The approved FTL Scheme applies to all 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 {Para 1.4};*
- *The objectives of an 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 {Para 2.1};*
- *Operators are required by law to take all reasonable steps to ensure that the provisions of their approved FTL Scheme are complied with {Para 3.1};*
- *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 {Para 3.4};*
- *Factors to be considered when constructing crew rosters should include:*
 - ❖ *the undesirability of alternating day/night duties;*
 - ❖ *the effect of consecutive flights through, or ending within, the window of circadian low;*
 - ❖ *the effect of consecutive transmeridian flights; {Para 3.6};*
- *Individuals crew members shall ensure that they are not in breach of their company's approved FTL scheme {Para 4.4}; and,*
- *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 {Para 4.7};*

It is difficult to see how this pattern, as proposed by CPA, complied with the above CAD 371 provisions.

Furthermore, there is a clear requirement In Law for the provisions of an AFTLS to be complied with. The definition of Normal Rest is equally clear and unambiguous: it does not apply, nor has it ever applied, to operations in excess of 6 time zones. Yet the Operator summarises his earlier arguments by stating - apparently on



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behalf of the Civil Aviation Department - that Normal Rest complies with Minimum Rest Requirements for Ultra Long Range Operations. Consequently, we believe that this interpretation of the provisions is contrary to the requirement in Law.

Conclusion:

The Cathay Pilots Union believes that using Normal Rest to comply with the limitations of Table R "Minimum Required Rest Period" following ULR is contrary to the current CPA AFTLS, the CAD 371 "Avoidance of Fatigue in Aircrews" provisions and, moreover, the Air Navigation Order.