



**Twenty First Meeting of the  
Informal South Pacific ATS Co-ordinating Group (ISPACG/21)**

Auckland, New Zealand, 6-8 March 2007

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Agenda Item 5: Identify future work programs.

**[Variation in True Airspeed]**

(Presented by Allan London Airways New Zealand)

**SUMMARY**

This paper invites discussion on the maximum speed differential aircrew can make without advising ATC.

**1. INTRODUCTION**

1.1 *Variation in true airspeed: if the average true airspeed at cruising level between reporting points varies or is expected to vary by plus or minus 5 per cent of the true airspeed, from that given in the flight plan, the appropriate air traffic services shall be so informed*".

*Reference Annex 2 Chapter 3 section 3.6.2 "Adherence to flight plan" para 3.6.2.2 b) and Jeppesen Page 307 3.6.2.2.*

**2. DISCUSSION**

The basis of procedural or non radar Air Traffic Control utilizes 3 main elements, namely the aircraft's route, level and speed.

Over the last decade the use of CPDLC and ADS has allowed a significant reduction in the longitudinal separation standards applied between aircraft on the same track with frequent use now made of both the 50nm and 30nm longitudinal standard.

During the same time period the variation in speed that pilots are permitted to undertake without advising ATC, has not reduced in proportion and has remained at 5 %.

ATC accept that long haul flights, in particular, will generally increase their speed throughout their flight as the aircraft becomes lighter. It is typical for a B744 to leave KLAX bound for the south pacific cruising M083 at beginning of their flight and M085-M086 towards the end of the leg.

Under normal conditions, ATC systems use the speed filed at the beginning of the flight plan in the exchange of AIDC messaging between adjacent ATSU's. Further speed changes, annotated in the flight plan, are of no real interest to ATC, as are the planned level changes as these are not referred to when arranging separation.

Consider the following example where two aircraft vary their speed by less than the 5% allowed.

Two B744 with a filed Mach speed of M084 are 65 miles apart longitudinally and 1000 ft vertically on the "same track".

One aircraft requests climb to the same level as the other.

The controller assesses that there is no catch up by assessing aircraft type and filed speed and approves the request to the same level using D50.

Shortly after the climbing aircraft levels out the company notes that the slot time at KLAX for the following aircraft is earlier than the leading aircraft and requires the following to increase speed and the leading to decrease. Consequently the leading decreases from M084 to M081 and the following increases from M084 to M086.

The respective change in speed as a percentage of the filed speed is a decrease of 3.6% for the leading aircraft and an increase of 2.4% for the following aircraft, far less than the maximum 5%, or in this case, M.04 allowed.

The M.05 speed differential equates to approx 5 minutes catch up per hour. With a ground speed of 540kts this equates to 45nm closure per hour.

In this situation a periodic ADS reporting rate of 14 minutes should indicate a closure between the aircraft of 11 miles and on a 27 minute reporting rate the closure would be 20nm.

In light of the reduced longitudinal separation standards currently employed in the south pacific it is recommended that the maximum variation that aircrew can employ without advising ATC be reduced.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Comment on the proposal to amend the maximum allowable speed variation of that first notified in field 15 of the flight plan or amended by a CHG message and determine what maximum variation should be used.
- b) Support an amendment to Annex 2 to change the maximum speed variation.