



IBAC Bulletin 03-01

Subject: Mach Number Technique (MNT).

This Bulletin is for the particular attention of business aircraft flight crews operating in NAT Oceanic Airspace, training providers and flight planning service providers. It is to be noted that MNT is also applied in other airspace.

Summary

Flight crews are required to use True Mach number in airspace where MNT is applied and to apply an AFM correction in the event that an un-corrected Mach number is displayed

Background

Mach Number Technique (MNT) is described in ICAO PANS-ATM (Doc 4444 ATM/501-Fourteenth Edition – 2001) paragraph 5.4.2.4 headed " Longitudinal Separation minima with Mach number technique based on time." Throughout that text the term "Mach number" is not explicit.

A companion ICAO document, the ICAO Air Traffic Services Planning Manual (Doc 9426 - AN 924), well known within the ATS planning community but not so well know to pilots, aircraft manufacturers and training providers, contains in Chapter 2 material on "The Mach Number Technique". There is a reference therein (vide paragraph 2.4.1) as follows:

"Application of the Mach number technique should always be based on true Mach number".

This is the only reference known to the author to "true Mach number " in ICAO documentation.

The ATS Planning Manual (Doc 9426 – AN 924) also contains additional, interesting and important text (vide paragraph 2.3.2), which resides under a heading " PREREQUISITES", as follows:

"2.3.3 Aircraft Instruments

The use of the Mach number technique in a given area is based on the assumption that the relevant flight instruments used by the aircraft to which this technique is applied have been calibrated in accordance with applicable airworthiness practices. Therefore, both States of Registry and operators concerned should take the necessary measures to ensure continued compliance with this prerequisite."

In airspace, such as that in the NAT Region, where Mach number technique is applied it is expected that flight crews will adhere to the Mach number approved by ATC and shall request ATC approval before making any changes thereto.

Notwithstanding the lack of specificity in the PANS-ATM, it has been the case since the inception of the Mach Number Technique that the procedure is based on True i.e. corrected Mach number, as distinct from Indicated i.e. uncorrected Mach number. Until relatively recently, the conventional wisdom was that all concerned viz. flight crews, airframe manufacturers, training providers, as well as ATC understood this fact.

However, it has recently come to light that not all current production business jet aircraft display True Mach number on the instrument panel. In these aircraft a correction is provided in the AFM, which is for use by the flight crew to apply to the Mach number displayed. Some flight crews are evidently unaware that it is an uncorrected Mach number that is being displayed and thus, do not apply a correction when operating in airspace where MNT is applied.

Flight crews are required to use True Mach number in airspace where MNT is applied and to apply an AFM correction in the event that an un-corrected Mach number is displayed.

IBAC is collaborating with ICAO to improve the ICAO documentation.

This Bulletin has been coordinated informally with the ICAO Secretariat, who have agreed to align the PANS-ATM with the ATS Planning Manual in the very near future to ensure that all concerned are well aware of this requirement.

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