IFALPA
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Safety Bulletin

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Oakland (KZAK) Oceanic ATC Operations VARIATIONS IN AIRSPEED IN CONTROLLED AIRSPACE

Issues have been reported with the implementation of operator procedures for unannounced speed changes within the Pacific Oceanic Flight Information Regions that have resulted in the reduction of the required separation minima.

The following procedure is in force:

A1613/16 - ATTN ALL AIRCREWS -NEW PROCEDURAL REQUIREMENT FOR FLIGHTS OPERATING IN OAKLAND OCEANIC CONTROL AREA (KZAK) IN ORDER TO SUPPORT COST INDEX OR ECON SPEEDS AND MAINTAIN ATC SEPARATION SPACING AIRCREWS ARE REQUIRED TO USE THE FOLLOWING PROCEDURES IN THE KZAK FIR. A PILOT MUST INFORM ATS EACH TIME THE CRUISING MACH NUMBER VARIES OR IS EXPECTED TO VARY BY A VALUE EQUAL TO OR GREATER THAN 0.02 MACH FROM:

1. THE MACH NUMBER AT FIR ENTRY; OR
2. ANY SUBSEQUENT SPEED CHANGE NOTIFIED TO ATC IN FLIGHT

IF YOU HAVE ANY QUESTIONS CONTACT DUSTIN BYERLY (510)745-3543. 14 APR 13:37 2016 UNTIL PERM. CREATED: 14 APR 13:41 2016

It should be noted that the speed change is tracked from crossing into the KZAK FIR, so after making the HF call/CPDLC it would be a good time to note the Mach.

Pilots are under the assumption that the CPDLC and position reports are doing this for them. This is not necessarily the case and it should be noted that KZAK does not have access to all ICAO speed blocks on the flight plan.

Aircraft speed changes that are not requested or announced to ATC can place an unacceptable risk on separation minima. FANS 1/A equipped aircraft may be separated by as little as 30nm laterally and longitudinally. When aircraft make a speed change and don't advise ATC, longitudinal separation can erode quickly. Data shows that aircraft are frequently making Mach speed changes of Mach .04 or greater and not advising ATC. A Mach speed change of M.04 equates to a change of around 26 knots. In the Pacific many FIRs apply RNP4 30nm separation using an ADS-C reporting rate of 14 minutes. If an aircraft makes a speed change of M.04/26 knots, ATC separation can erode by 6nm before the next ADS-C report can make ATC aware of the speed change. A Six nautical mile erosion is 20 percent of the separation minima which creates a significant safety risk.

Aircraft manufacturers have stated that the reported Mach speed in ADS-C reports is instantaneous speed and not the target speed of the aircraft. It has been stated that because the reported Mach speed is instantaneous it could not be relied on for separation and fix-time calculations since it will show fluctuations from the target speed and may show significant fluctuations in some cases such as when the aircraft encounters turbulence (target speed = the speed that the aircraft is striving to maintain).

While fixed Mach Speed assignments can be effective in managing aircraft speeds, they are not as efficient because they cause extra fuel burn. Most aircraft in the Pacific utilize Cost Index or Econ mode to manage their speed. Cost index or Econ modes leads to a very gradual slowing of the aircraft speed as the weight of the aircraft is reduced and the wind and outside temperature evolve. These gradual speed changes do not place a risk to safety. It is the abrupt large speed changes that occur when and aircraft encounters turbulence, slows to meet a curfew or other pilot commanded large speed change events that pose a risk to safety.

A Mach Speed change of M.04 by one aircraft could cause:

- A 5.5nm reduction in separation between RNP4 ADS-C reports
- A 10.8nm reduction in separation between RNP10 ADS-C reports