**Thirty-seventh Meeting of the
Informal South Pacific ATS Co-ordinating Group
(ISPACG/37)**

**Tahiti
April 27, 2023**

Agenda Item 4: Information Papers

SUPERSONIC AND HYPERSONIC OPERATIONS IN THE PACIFIC

Presented by **FAA**

SUMMARY

There are a number of manufacturers developing supersonic and hypersonic aircraft for commercial passenger service. These new generation aircraft are expected to have a significantly reduced sonic boom noise profile compared to other supersonic aircraft, such as the Concorde. It is anticipated that operators of these aircraft will be seeking to operate at supersonic/hypersonic speeds across the Pacific Oceanic Airspace and over land. This paper seeks to provide information on existing and planned procedures/rules meant to accommodate these new entrants.

1. Introduction

1.1. There are several manufacturers developing supersonic and hypersonic passenger transport aircraft that will operate between FL550 and FL950. One manufacturer, Boom Supersonic, has contracts with American Airlines, Japan Airlines, and United Airlines for delivery of its Overture aircraft, with expected passenger flights commencing in 2029.

1.2 Lockheed Martin, in conjunction with NASA, is developing the X-59 QueSST (Quiet SuperSonic Technology). Flight testing is planned to begin in early 2023. Community response testing will be conducted from 2024-2026. NASA will provide a complete analysis of the community response data to U.S. and international regulators, including ICAO's Committee on Aviation Environmental Protection, for their use in considering new sound-based rules regarding quiet supersonic flight over land.

1.3. Conventional supersonic aircraft tend to produce significant pressure waves that create a pronounced “boom” that cannot only be loud/startling, but have even caused minor structural damage.

1.4. Manufacturers of these new generation aircraft are designing aircraft that are expected to create significantly reduced pressure waves, resulting in a “boom” that is similar to the sound of a car door closing.

1.5. Given that the sonic boom profile of these new generation aircraft is expected to be

much different, a number of States, including the United States, are considering changes to policies that restrict supersonic flight over land and territorial waters, which typically includes a 12-mile zone off the coast.

1.6. As an example, the US Federal Aviation Administration (FAA) modified its rules for requesting a special authorization to operate aircraft in excess of Mach 1 over land. (Attachment A, 14 Code of Federal Regulations Part 91)

2. Discussion

2.1. Supersonic passenger flight, particularly through the North Atlantic Oceanic Airspace, was a relatively common occurrence prior to the retirement of the Concorde from commercial service in 2003. In the ensuing almost two decades, procedures and regulations for supersonic flights have remained in place and relatively unchanged.

2.2. With the expected proliferation of these new generation supersonic passenger aircraft within the next decade, Air Navigation Service Providers (ANSPs) should consider if existing procedures within the ICAO Procedures for Air Navigation Service - Air Traffic Management (PANS-ATM) Document 4444, State air traffic procedures, and other regulatory/guidance material are sufficient to accommodate these new entrants.

2.3. These new generation supersonic/hypersonic aircraft will have a substantially reduced sonic boom profile, which as described in the introduction may be similar to the closing of a car door. As such, flight over land and territorial waters, in addition to flight in oceanic airspace, may become viable.

2.4. As part of its work, ISPACG should be examining supersonic and hypersonic new entrants for development of guidance material and harmonization of procedures within Pacific Oceanic Airspace; however, transition to/from oceanic airspace and whether individual States will allow aircraft to continue flight over territorial waters/airspace may also need to be considered by Pacific ANSPs.

3. Conclusion

3.1 The meeting is invited to note the information provided.

3.2 Discuss and consider development and harmonization of procedures to accommodate supersonic and hypersonic aircraft.

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