

SUPERSONIC FLIGHT OVER LAND

HIGH-SPEED FLIGHT FOR THE 21ST CENTURY



BACKGROUND

Beyond the technical challenges related to making commercial high-speed flight sustainable and practical, FAA regulations currently exist that prohibit anyone from operating a civil aircraft at supersonic speeds over land in the United States and from a certain distance offshore where a boom could reach U.S. shores.

With few exceptions, the Aircraft Noise Abatement Act of 1968 requires that commercial aircraft not exceed Mach 1 and meet current airworthiness and noise certification requirements. While there have been various proposed supersonic/hypersonic commercial platforms, and even commercially operated ones, as in the case of the Concorde, the regulations requirement to not exceed Mach 1 over land where a sonic boom could be felt has imposed a rigid operating constraint on commercial applications and ventures.

WHY IT MATTERS

Even with the current FAA restrictions in place, companies, both large and small, continue to propose and develop supersonic/hypersonic platforms for commercial application. In addition to the work being done at the vehicle level for high-speed transit, propulsion research is ongoing and is addressing the unique challenges to provide reliable engines that are economical to operate. New technologies are being developed that allow supersonic aircraft to meet the FAA's noise regulations. Other work is being performed, primarily by NASA, that will demonstrate acceptable sonic boom levels, and thus the feasibility of supersonic flight over land.

Initially, supersonic/hypersonic flight is focused on business airplanes and travel. However, the companies leading this effort are working closely with, and in some cases funded by, large international airlines whose goal is to transition the technology to the larger flying public. To accomplish that, the regulations must allow for the technology to be deployed in the most economical manner that does not make the application overly prohibitive, either in cost to the customer or in utilization by the operator.

WHAT'S NEXT

Currently, the FAA has two rulemaking activities in place in response to the growing interest and investments in reintroducing commercial supersonic flight. Scrutiny of supersonic flight has naturally focused on the restriction of supersonic flight over land. Accordingly, the FAA Reauthorization Act of 2018 stipulates that by no later than 2020 the agency must initiate noise standards (takeoff and landing) for supersonic aircraft and then create rules to permit supersonic flight over land. Implementation by the FAA must reflect a balance between acceptance and certification of viable technologies that address noise and sonic boom concerns while maintaining the high level of safety that the public expects from air travel.



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