

# NASA WANTS TO BRING BACK SUPERSONIC JET TRAVEL

News / Airlines



Since the dawn of the Jet Age, airline travel has evolved radically save for one aspect: We still fly at around 500 mph. The Boeing 707, usually credited with starting it all in 1957, cruised at 600 mph with an altitude ceiling of 41,000 feet—almost identical to airplanes now in production.

NASA says technology is now primed for a leap forward—to supersonic flight—cutting cross-country travel times to two hours or less and making a trans-Atlantic trip a matter of just a few hours. The question is whether commercial jet makers, and airlines for that matter, will follow its lead.

The Achilles heel of past supersonic flights on the now decommissioned Concorde was a neighborhood-rattling sonic boom that led the U.S. and other countries to ban its flight over populated areas. Such restrictions also mean military aircraft tend to hit supersonic speeds only over the ocean and certain unpopulated areas.

But now, almost 60 years after the 707's maiden flight, NASA and others believe airframe design

has advanced to a point where the traditional sonic boom can be mitigated into something akin to a sonic soft thump, or “heartbeat,” as a NASA news release puts it. In theory, many people on the ground might not even hear this brief rumble as the jet passes overhead, the agency says.

“We’ve got the technology now in hand, where we can actually see supersonic built again and being flown over land,” says J.D. Harrington, a NASA spokesman. The Obama Administration has proposed \$790 million for aeronautics research in its fiscal 2017 budget.

To pursue this work, the agency has awarded Lockheed Martin Corp. a \$20 million contract to develop a design for a supersonic aircraft over the next 17 months. A subsequent contract will then have the winning bidder build a one-person NASA X-plane to test the design for several years, with a view toward pushing commercial aviation into a supersonic flight future. The research on Quiet Supersonic Technology (QueSST), will be managed through NASA’s Langley Research Center in Virginia.

Yet NASA is hardly alone in the technical quest for a viable supersonic aircraft—making the question of whether U.S. taxpayers need to advance the field a relevant one. Aerion, a company backed by Texas billionaire Robert Bass, is working to build an eight-passenger supersonic business jet, the AS2, and targeting a first flight in 2019. The Nevada-based company signed a technology sharing deal with Airbus Group SE in 2014. As fast as it will be, though, Aerion’s jet is more akin to the Concorde in that its speed will be subsonic over land, to avoid sonic booms. The NASA aircraft is designed to travel supersonic throughout its flight by mitigating the noise on the ground.

None of the four largest commercial aircraft manufacturers, Airbus, Boeing Co., Embraer SA and Bombardier Inc., has announced a supersonic model. In 2014, Airbus’s U.S. president, Allan McArtor, told Bloomberg News that business aviation was the likeliest venue for a new supersonic jet, given that large airlines don’t sell speed—they sell luxury to executives and cheap seats to leisure travelers. Through a U.S.-based spokesman, Airbus declined to comment on its views of supersonic passenger aircraft.

Boeing briefly pitched customers on a faster aircraft in 2001, which it dubbed the Sonic Cruiser. The idea was to counter Airbus’ massive A380 with a smaller plane that would fly roughly 20 percent faster than current models and flirt with the speed of sound but avoid the booms associated with crossing the 768 mph sound barrier. The Sonic Cruiser was shelved in 2002, and morphed into the 787 Dreamliner, after airlines made clear they preferred a more fuel-efficient jet. Moreover, a quieter supersonic transport won’t come cheap: Aerion lists its jet at \$120 million apiece. By comparison, Gulfstream Aerospace Corp.’s largest long-range business jet, the G650, sells for about \$65 million.

Scaled up to the 100-110 passenger jet NASA envisions, a supersonic aircraft could fly into very stiff economic headwinds. Some of the questions: How much would a ticket need to cost? Would a supersonic flight to Asia be considered fuel efficient? Does the design scale to the size of the larger jumbo jets carriers now fly on long-haul international routes, such as the Boeing 777, 787 and Airbus A350s and A330s?

On the latter issue, the answer is yes, in theory. “Sonic boom is only very loosely related to weight and size, when you have a shaped aircraft,” says Michael Buonanno, the project’s chief engineer at Lockheed’s Skunk Works advanced research center in California.

NASA began working new designs more than a decade, using the power of supercomputers to model the fluid dynamics in ways earlier engineers never could, Harrington said, followed by wind

tunnel tests. “And now we’re at the stage where we can actually build an X-plane,” he said.

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