Goldeneye AB1

Raghav Anand, Alec English, Dante Gao,
Saunon Malekshahi, Rohan Sinha, Noah Stevenson

Faculty Advisor: Professor Stuart Bale, Ph.D.
Director of Space Sciences Laboratory

University of California, Berkeley

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Abstract

In October of 2003, the Concorde was retired from service, signaling the end of an era. The airliner was one of only two passenger planes to ever fly supersonic, dominating this market for a quarter-century. Since the Concorde's final flight, commercial aviation has been confined to subsonic aircraft, marking the first time in history that this industry has regressed technologically. With little incentive, aerospace companies have spent the last decade and a half tweaking and refining the designs of existing aircraft rather than innovating bold new ideas.

However, we are on the cusp of a new chapter in the ongoing history of supersonic flight. In the spirit of inquiry, discovery, and entrepreneurship, we are pleased to present Goldeneye AB1, a supersonic business jet concept that is the first of its kind. A joint venture between the College of Engineering and Space Sciences Laboratory, Goldeneye is the first supersonic commercial plane to feature a variable-geometry wing. With its stowed radial wing extension panel, Sears-Haack fuselage, and adjustable engine intake design, the AB1 significantly reduces noise and drastically improves aerodynamic efficiency in comparison to other supersonic aircraft. While unconventional by design, Goldeneye AB1 presents advancements that are unprecedented in the world of supersonic aviation, rendering it capable of changing the industry forever.

Goldeneye's target cruise speed is Mach 1.7, though it can reliably cruise anywhere from Mach 1.6-1.8. The AB1 attains a total specific fuel consumption (TSPC) of 0.93, with its engines providing 4833.29 lbf (21722 N) of thrust. Goldeneye can traverse its maximum range of 4227 nautical miles in just 3.96 hours, consuming 17853 lb of fuel in the process. Designed to carry up to 12 passengers, the AB1 achieves 2.84 passenger-miles per pound of fuel, making it one of the most efficient supersonic passengers planes ever introduced. Slated to enter the market by 2025, Goldeneye's sleek, versatile, and economical design will make it the premier contender in the near future of commercial supersonic aviation.